12-2003

# Subsistence, Butchery, and Commercialization in Knox County, Tennessee

Rachel Jeannine Windham
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To the Graduate Council:

I am submitting herewith a thesis written by Rachel Jeannine Windham entitled "Subsistence, Butchery, and Commercialization in Knox County, Tennessee." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Anthropology.

Walter E. Klippel, Major Professor

We have read this thesis and recommend its acceptance:

Charles Faulkner, Benita Howell

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Anne Mayhew
Vice Provost and
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# Subsistence, Butchery, and Commercialization in Knox County, Tennessee

A Thesis Presented for

the Master of Arts Degree

The University of Tennessee, Knoxville

Rachel Jeannine Windham

December 2003

**Acknowledgments**

This thesis came through hard work, several anxiety attacks, and a few tears and would not have been accomplished without the patient support of several individuals.

I would first like to thank my committee members, Dr. Walter E. Klippel, Charles H. Faulkner, and Benita J. Howell, who always listened and offered advice and direction to my endless questions. Dr. Klippel patiently dealt with my quirky nature and offered assistance with analysis of aggravatingly small cuts of bone. Dr. Faulkner proved an bottomless source of encouragement and advice on the numerous historic sites investigated in this study and Knoxville's documented (and less documented) history. Special thanks for all those long, early morning discussions. Dr. Howell was also of tremendous assistance by encouraging this project in the early stages, and teaching me the ins and outs of archival research.

Special and multiple thanks are extended to Jodi A. Jacobson who is a friend and constant source of encouraging smiles. Without her I am not sure I would have survived graduate school in one piece.

I also owe endless thanks to my family that has supported me through my studies despite their relatively obscure nature. Finally, I want to express my endless gratitude to my husband, Kevin Harrelson, who as an archaeologist and my best friend truly helped me through this process; and to our soon-to-be-born son, Kiran, who already gives us joy while providing ample amounts of motivation to meet personal deadlines.

## Abstract

A multifaceted approach to zooarchaeology is used to attain a broader diachronic view of Upland South subsistence and market activities as commercialization increased nationwide. Greater beef consumption is evidenced through faunal remains as availability and affordability increase with technological advancements. Paralleling this trend is an increased acceptance and purchase of Georgian cuts (individual hams and beef steaks) gaining popularity over time.

In order to investigate this pattern, a sample of six historic archaeological sites in Knox County, Tennessee, differing in proximity to urban markets, socioeconomic status, ethnicity, and temporal context was chosen. General time ranges from the late eighteenth through the mid-twentieth century are used for descriptive purposes, and incorporate relevant historical, subsistence, and butchery data to demonstrate archaeological trends of a developing meat market. Additionally, the author proposes the identification of butchery saw and cut width measurements in historic zooarchaeology to glean greater information on individual site activities and market involvement.

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# Chapter I

## Introduction

Historical zooarchaeology is a relatively young field experiencing growth and discussion as new and different research questions are explored with the aid of documentation. Establishment of regional subsistence patterns during the early settlement of the American frontier has received a great deal of attention. Specific to this thesis project is the Upland South pattern that relies heavily on home butchery of pork at rural farm sites from the 1790s (the frontier period in East Tennessee) to the early 1900s (Lev-Tov 1994; Patterson 1998b). However, how this trend manifests itself, if at all, in the face of increased commercialization and the growing urban sector over time is yet to be addressed in this region.

In order to compare the previously established model of Upland South subsistence and historical documentation over time and space, it is imperative to incorporate a multifaceted approach in a controlled area of archaeological significance. Methods to accomplish such a large scope of information include historical and archival research combined with investigation of previous faunal analysis of diverse archaeological sites in the localized area of Knox County, Tennessee. New variables that assist in evaluating commercial activity and increased standardization of meat butchery are saw identification and cut width that are explored in this study. The wealth of information on Knox County, a multitude of historic archaeological sites, and research on saw mark evidence (in a forensic context) at the University of Tennessee, Knoxville, provides a working platform to approach this integrative study on meat market trends of domestic pigs and cattle in the Upland South.

Chapter II of this thesis addresses the specifics of historical zooarchaeological research. It is important to understand how zooarchaeological studies have been used to investigate social questions in the recovered record. Socioeconomic status, consumer choice, and ethnicity are complex issues that are difficult to interpret from faunal remains. Species and element representation are traditional variables that provide insight to social differences in foodways. Butchery patterns also receive close inspection and assist in deciphering site activities. It is this variable that is most valuable in determining commercial trends and involvement, and is of particular interest in this study.

Chapters III and IV explore the historical context of Knox County and Knoxville from settlement in the 1790s to a city of the mid-twentieth century. Historic and archival research is presented in an abbreviated format by time period to acquaint the reader with the region and development of the metropolitan area (Chapter III). More emphasis is placed on documenting the progressive development of the meat market in and beyond the growing city, and how this development directly affected local Appalachian farmers over time (Chapter IV). By discussing this generalized regional timeline, a foundation is built for archaeological comparison in following chapters.

Documentation of butchery saw use is a previously uninvestigated variable in zooarchaeology. An outline of the known history of saws in Europe and the United States is presented as they were an essential possession of the frontiersman's tool kit. Despite ample efforts, there is only limited information in the historical record for this implement, which is summarized in Chapter V. However, forensic research on saw evidence is of great assistance in deciphering the minute and microscopic differences between saw marks, and provides a comparative sample for this study. Descriptions and photographs

of specific evidence for the hack, back (mitre-box), crosscut, kitchen, meat, and band saw are presented for future use. Particular attention is paid to characteristics found most useful in comparative analysis of often eroded and fragmentary faunal remains.

This is followed by an explanation (Chapter VI) of the methods and goals of this study to attain a more thorough interpretation of meat market involvement in Knox County. An additional variable of cut width is described within this chapter. This was quantified to evaluate patterns in produced and purchased meat cut sizes. Small individual cuts (referred to as Georgian cuts) reflect the demand for personal serving and individuality typical of the Georgian mindset. Medium and larger sized cuts (referred to here as commensal cuts) are meant for group consumption and represent a difference in consumer choice and goal. Statistics of these measurements for each species and site shows standardization of butchery practices.

Six historic archaeological sites were chosen for their diversity in socioeconomic status, location or closeness to urban Knoxville, and represented temporal context(s). These include the Ramsey Site (40KN120), Bell Site (40KN202), Gibbs Site (40KN124), Perez Dickinson Site (40KN128), Sixth Avenue Dump (40KN83), and Golf Range Dump (40KN143) that are each described historically with a brief evaluation of recovery techniques in Chapters VII through XII. Sections summarizing subsistence, butchery patterns, tool use, and cut width are provided by temporal period for each site in the respective chapter. Emphasis is given to evidence of tool (saw) use and cut width as this is the method of determining market involvement at each site. A summary concludes each site chapter and serves to illustrate the information gleaned from the diversity of data presented.

The historical record and zooarchaeological data included in this study are then summarized (Chapter XIII) to present subsistence and butchery trends in light of increasing commercialization of the county and nation. Conclusions for this localized region are also included and paint a broader view of residents, farmers, and the meat market in Knoxville over time and space as technological advancements modified the American landscape. Finally, the pattern is related to historic zooarchaeology and how meta analysis of site data and historical documentation can provide greater information than individual site reports.

## Chapter II

## Historic Zooarchaeology in the Upland South

Historic zooarchaeology is relatively young as a distinct subdiscipline beginning with Parmalee's (1960) analysis of the historic Fort Loundon assemblage (Jolley 1983). The continued draw of this field with the support of historic documentation has opened many doors for analysis and interpretation that one is not able to pursue in the prehistoric record. This includes social questions such as socioeconomic status (Schulz and Gust 1983a; Reitz 1987), ethnicity (Langenwalter 1980; Stewart-Abernathy and Ruff 1989), consumer choice, and others. By investigating the multiple lines of evidence available in historic archaeology, zooarchaeology has advanced an understanding of changing subsistence activities in light of differing cultural groups and growing industrialization.

As with any young scientific field, methods and interpretation in historic zooarchaeology have been subject to much debate. How can one feasibly quantify faunal remains to answer questions about social issues that pertain directly to the goals of this study on Knox County historic meat consumption? A brief discussion of these concepts as they have influenced zooarchaeological research is presented below for greater comprehension of data quantification to answer these specific questions. However, any interpretation should use converging lines of evidence for a more accurate reconstruction of any historic site.

Socioeconomic status is a means of describing the income and position of a particular person or family unit in relation to other residents. In historic zooarchaeology this is typically assessed by the quality of meat cut and diversity of species consumed as described by Reitz (1987) and Crabtree (1990). This method calls for a standardized

ranking of meat cuts and ordering of those cuts by expense and/or desirability in a market economy (Schultz 1979; Gust 1983; Schultz and Gust 1983a and 1983b). However, Lyman (1987) argues that meat yield versus meat cut could partially control purchasing decisions, and provides a measure of cost efficiency compared to desirable beef cuts.

These ranking systems ignore the multivariate choice of the individual consumer described by Schmitt and Zeier (1993). Consumer choice includes three primary variations in a market economy: systemic, structural, and consumer related. Systemic variation considers the relationship between the markets and the purchasing community that is affected by variables such as seasonal availability, price change, regional distribution, and transport costs. Structural variation considers food preparation such that restaurants and households have different goals and numbers of mouths to feed and will subsequently have very different archaeological assemblages. Consumer related variation is affected by individual, group, or commercial choices in purchasing that can result from ethnic patterns, economic status, and/or time investment. From this brief description it is apparent that consumer choice requires understanding and consideration of many variables for accurate interpretation.

Ethnicity, another characteristic that can affect foodways, has received less attention from zooarchaeologists because it is difficult to test from faunal remains. Patterns of species avoidance in the diet and/or differing butchery practices that represent ethnicity could also result from other variables such as socioeconomic status or consumer choice. These and other variables create an aura of complexity around ethnic foodways that leave many archaeologists and zooarchaeologists perplexed. Some question if ethnicity can be deduced from the excavated record (Schuyler 1980).

However, some studies (Langenwalter 1980; Stewart-Abernathy and Ruff 1989) have found sufficient faunal evidence to establish patterns of recognized ethnic difference. These results show unquestionable evidence for these distinctions, but it is more likely that differences would be relatively minor and unrecognized at most sites. Evidence for ethnic foodways is minimally investigated in this study, which attempts to identify variation between Knox County historic sites.

Butchery practices have also received attention from zooarchaeologists as changes in meat cuts and tools offer insights to interacting social systems (Deetz 1977; Crader 1990). Though much interest has been placed on the distribution of cuts within a plantation setting, butchery can also reveal changes in local and national foodways. Deetz (1977:124-125) asserts that the shift in butchery methods from use of the cleaver to the saw indicates the acceptance of the "Georgian order" mindset where individuality and standardization were emphasized. This led to individually sawn, sold, prepared, and consumed cuts of meat that had smaller widths in the late eighteenth century opposed to chopped large meat portions (stew meat) of previous eras. If this pattern is accurate and gained popularity over time, then it should be visible in this study.

Due to the noise that can affect historic zooarchaeological interpretation, quantifying faunal data into meaningful units of multivariable interpretation has also received attention in the literature. Huelsbeck (1991) proposed that evidence should be evaluated in a consumer behavior research framework. Reitz (1987) discusses recognition of cultural markers in conjunction with faunal evidence for evaluation of socioeconomic status. Crabtree (1990) investigates butchery methods, tool use, and cooking methods to form interpretation of remains. However, Garrow (1987) suggests that each of these

considerations is equally important to assess an assemblage and is best understood through converging lines of evidence. Therefore, this research investigates socioeconomic status, consumer choice, and ethnicity (minimally) through historical documentation and all zooarchaeological evidence. This includes specific saw use evidence that is an additional and previously uninvestigated means of answering zooarchaeological questions.

## Chapter III

## Historical Overview of Knoxville, Tennessee: Urban Development and Transportation

### Frontier Period (circa 1780-1814)

Initial exploration and settlement of East Tennessee during the frontier period (1795 and earlier) followed previous Native American and wild game trails that flanked the Appalachian Mountains, and water routes down the French-Broad and Holston rivers (Rothrock 1946). There was some early cooperation between Native Americans of the region and immigrating/migrating Euro-Americans through corn exchange and sharing of hunting grounds (Rothrock 1946). However, hostilities developed with increased settlement of native lands after the Revolutionary War and "the land grab act" of 1783 (McArthur 1976). During this period (1785-1786), James White, an early land speculator, purchased several tracts of land in Tennessee including areas at the confluence of the French Broad and Holston rivers naming the small settlement White's Station.

Over the next five years several pieces of legislation returned the land to the Cherokees and vice versa (see Rothrock 1946). In 1791, William Blount, an early settler and well known advocate for development, negotiated the Treaty of Holston with the Cherokees that freed White's land for Euro-American settlement (Rothrock 1946). White's Station was renamed Knoxville in 1791 serving as the first territorial capital then state capital from 1796 to 1811.

Present day Knoxville is at the same location of the originally established White's Station and represents the early junction of several transportation routes. As shown on

Figure 1.1, there are several land routes to and through the area that are still used today and were likely aboriginal and/or herding routes prior to Euro-American settlement. These include Asheville Highway, Rutledge Pike, Kingston Pike, and Tazewell Pike that enter the area from the east, west, and north. According to a 1792 plan view of White's Station, Rutledge and Kingston pikes existed at that time. These land routes only represent a fraction of possible migration paths, but likely were the more significant for those coming from the north east to the Cumberland Plateau.

Also in 1795, a lottery was established providing funds for trail improvement to a wagon road that stretched from Knoxville to middle Tennessee, which was the original as Kingston Pike (Rothrock 1946; Deaderick 1976), representing a major thoroughfare throughout Knoxville's history. Other land routes developed or improved during the late eighteenth and early nineteenth centuries including a route through the Cumberland Gap and from nearby Maryville to Savannah, Georgia, on the Atlantic coast. Improvements in road transportation were provided by the state and contracted to private companies that would often charge tolls for profit and maintenance (Rothrock 1946).

Rothrock (1946) emphasizes that land routes were more often used due to the growing hostilities between Euro-Americans and the aboriginals concentrated along major rivers. However, river travel played a significant role during the frontier settlement period and early development of the urban center (Deaderick 1976). Knoxville's ideal location at the on the French Broad and Holston rivers indicates that these routes were years (McArthur 1976). It is also during this time period that the state capital was moved

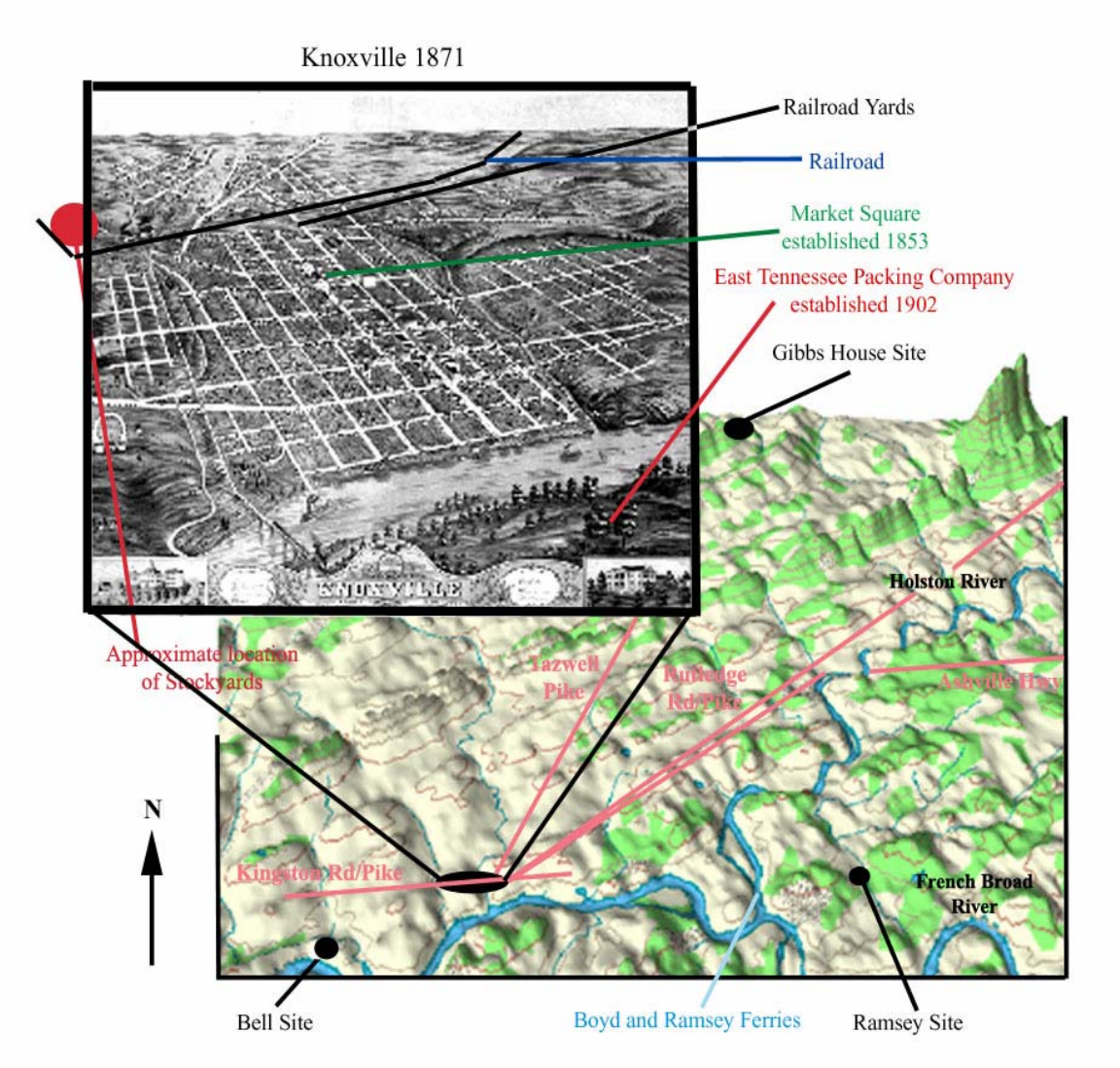



**Figure 1.1:**

**Relevant Areas of Knox County, Tennessee**

**Showing Knoxville and Associated Historic Sites**

Information combined from 1807 Plan view of Knoxville; Birds-Eye View 1871;

Delorme 1999; and Gardner 1908

used to some degree prior to White's settlement, and is further supported by exploitation of this travel option in the late eighteenth century (Rothrock 1946). River ferries and landings provided transportation and trade centers demonstrating that the river was used extensively by early settlers of the area (Holmes 1991). Twenty-three ferries are described by Holmes (1991) at several crossings of the French-Broad and/or Holston rivers, most of which operated as early as 1792-1793 and changed ownership over time. These early ferries provided livestock transport across the river for trade (Holmes 1991). Additionally, trade with southern cotton states relied heavily on river transportation of products, especially pork, for slave rations (Rothrock 1946). These goods were later transported by barge, but early methods included flat and keel boats when high waters permitted. Other produce trade to New Orleans is noted by Rothrock (1946) and Deadrick (1976) such that farmers would load part of their produce on flatboats and keelboats, and wait for high waters that would permit travel through the many river obstacles. These included shoals (the worst area being Muscle Shoals, Alabama), fish traps/weirs, narrows, gorges, and grist mill dams along the route to the Golf of Mexico. For these reasons, river navigation and improvement became of great importance to Knoxville citizens for further growth and development of the city and markets with time. However, livestock trade relied most heavily on overland travel that is documented in Tennessee's early history (Burnett 1946).

## Antebellum Period (1815-1859)

Improved land and river routes increased transportation to and through the Knoxville area encouraging urban growth, but people were slow to settle. In 1810, there were just over 700 inhabitants in the city, which only increased to 2,076 over the next 40

to Nashville from Knoxville and likely further discouraged rapid growth. However, many residences/farmsteads were established in Knoxville and its outlying area just before and during these initial stages of urban development and growth, some of which are the archaeological sites discussed in the following chapters.

Transportation continued to be a concern of Knoxville citizens wishing to expand their economic distribution and stimulate commercial growth. Turnpikes became popular through the rest of the state, but "East Tennesseans did not get involved in the state program, casting their lot with what appeared to be a promising mode, the railroad" (Patton 1976). This regional decision proved to hinder the commercial goals of Knoxville and surrounding areas despite the eventual success of the railroad.

Rothrock (1946) and Patton (1976) also discuss the emphasis placed on river improvements to make way for more regular freight travel to the south. The Muscle Shoals area on the Tennessee River in northern Alabama was the largest obstacle to early travel. It was bypassed by a canal in 1828, by railroad in 1836, and was the site of many other improvements over time (Rothrock 1946; Patton 1976). Yet, most could only travel down river via barge or flatboat during high waters until invention of the steamboat and further river improvements. The *Atlas* from Alabama was the first to reach Knoxville in 1828 and was welcomed by a "high style" party thrown by Knoxville residents, yet only made the journey once for unknown reasons. A movement for Knoxville to obtain their own steamboat company was started soon thereafter by important residents such as J.G.M. Ramsey and W.B.A. Ramsey. This resulted in the Knoxville Steamboat Company in 1831. Unfortunately, it did not enjoy great success due to the continued burdens of natural obstacles and was sold in 1838 (Rothrock 1946).

Drastic river improvement became necessary for any river transport including steamboat; therefore, the state appropriated money for the removal of major river obstructions. The Corps of Engineers suggested deepening and wrapping of the channel. This made steamboat passage from Knoxville to Decatur, Alabama, by the *Guide* possible from November to June (high water months). By 1838, the state appropriated $100,000 for the improvement of smaller tributaries and use of keel boats that could connect to main rivers steamboat service (Rothrock 1946).

The focus of transportation changed abruptly with the invention and rapid expansion of the railroad. Knoxville civic leaders such as Ramsey recognized as early as the 1830s that the railroad offered better transportation opportunities both to the north and south and to the larger market centers such as Philadelphia and Baltimore without the hassles of river transport. Early efforts to attain railroad connection failed resulting in continued use of the river system until the mid-nineteenth century. In 1852, a railroad was operational from Dalton, Georgia, to Blaire's Ferry in Loudon, Tennessee. This line was extended to Knoxville in 1855 and named the East Tennessee and Georgia Railroad. Completion was celebrated by Knoxville residents through a July 4$^{th}$ Jubilee indicating the public recognized need for such city improvements. The East Tennessee and Virginia Railroad began construction on the same day and would provide access to the North and East by connecting Knoxville to Bristol, Virginia, by 1858. These two important railroads were soon consolidated under the East Tennessee, Virginia, and Georgia effectively connecting Knoxville to major urban areas and promoting manufacture and produce export. Also two other lines, the Knoxville and Charleston and the Knoxville and Kentucky, were soon begun yet did not enjoy the same success for varying reasons of

financial struggles and Civil War destruction (Rothrock 1946). These and other lines led to Knoxville's later role as nucleus of the Southern Railroad and wholesale distribution (Deadrick 1976), making the city a strategic point of interest to both the North and South.

Commerce thrived with the continued success of Knoxville's public market established in 1816, then a curb market in 1850, and finally Market Square in 1853 (Figure 1.2) (Rule 1900). Railroad connection (Figure 1.1) had long lasting benefits to the community as it passed directly through town with convenient stops in the downtown commercial district and to the west of town where a stockyard and marble company (Figure 1.1) were located. Therefore, this period marks the beginning of Knoxville's urbanization as the infrastructure for drastic growth was placed in operation. Unfortunately, these advancements also increased the strategic value of the city during the country's greatest conflict, the Civil War.

Bellum or Civil War Period (1860-1866)

The Civil War was a period of divided political loyalties and economic stalemate in Knoxville. Though the road system was in bad condition, the recent railway construction and operation of the combined East Tennessee, Virginia, and Georgia line made Knoxville a strategic point for both the Confederate and Union troops. At first the railroad provided supplies to the Confederate troops; however, East Tennessee Unionists soon burned the railroad bridges effectively stalling efficient transport. In the fall of 1863, federal troops occupied the region. Confederates proceeded to destroy as much railroad as possible to stop advancement, but they were subsequently rebuilt by Union troops. River transport was also used (Rothrock 1946), but was likely more susceptible to


**Figure 1.2: Market House in Market Square established in 1853**

attack from the wooded banks. Overall, there was a lack of commercial development due to the priority of city defense and massive property destruction. The farmers were the most affected due to troop movement through the area, resulting in devastation of crops, livestock, and property as troops raided small East Tennessee farmers of their traditional livelihood.

Postbellum (1867-1899)

Just after the Civil War, economic growth was encouraged by the repairs, consolidation, and expansion of several small railroads under larger companies including the Memphis and Charleston Railroad creating the intricate network of the Southern Railway System. The East Tennessee, Virginia, and Georgia Railroad also expanded by

completing tracks to Louisville, Kentucky, via Nashville in 1883, and obtaining the Cincinnati, Cumberland Gap, and Charleston Railroad in 1871, which positively influenced Knoxville's commercial growth. Other lines were built and incorporated into the larger Southern Railroad System including a line from Knoxville to Maryville in 1868 and from Middlesboro, Kentucky, to Knoxville in 1898 (Rothrock 1946). Additionally, the success of the railroad caused a decline in the continually flawed river transportation after the Civil War. Though transport costs were less than rail, competition increased with time and agricultural river commerce was practically obsolete by 1900 (Rothrock 1946). This relatively fast expansion of rail transportation helped rebuild and establish Knoxville as a wholesale market center with export of goods, produce, and livestock (especially after invention of the refrigerator car in 1875) to urban areas in all directions (Deadrick 1976). However, rail improvements also increased competition with the west resulting in a need to modify traditional agriculture in the area (Rothrock 1946).

Public funds were also appropriated for turnpike and highway construction and improvements after the Civil War. Five turnpike companies were chartered by the Tennessee legislature that constructed and maintained routes that are still used today. These include the Kingston, Rutledge, French Broad River, Western and Montgomery, and the Knoxville and Tazewell Turnpike companies. Turnpikes (many shown in Figure 1.1) radiated from Knoxville to other urban centers for travel and commerce (Patton 1976). Tolls were charged every five miles with price dependent on mode of transport, number of people, or number of livestock such that sheep and hogs driven along these routes were charged ½ cent per head (Rothrock 1946). Later these tolls were raised and

booths placed closer together (Patton 1976) increasing the financial burden on small farmers who were recovering from the war's destruction.

The period just after the Civil War was also a time of industrial growth as the New South movement gained momentum. The shifting economic emphasis from small farms to mass production is primarily marked by a near quadrupling of population from 1870 to 1900 from 8,682 to 32,673 in Knoxville (McArthur 1976). These rural migrants (and emancipated African Americans) were in search of unskilled employment due to farm devastation and overpopulation of limited land resources in Appalachia (McDonald and Wheeler 1983). The influx of manufacturing companies offered opportunities. The consequences are best described by McDonald and Wheeler (1983:11):

> Rural whites and blacks who moved from the agriculturally over populated hinterland in search of employment soon learned that industrialization and urban life threatened to cut them off from the traditional culture and institutions they valued so highly.

The cultural collision of these different and opposed groups caused rampant conflict in Knoxville that threatening the commercial advancements of the urban area. Rural migrants were inclined to continue their previous lifestyle on a smaller scale such as keeping free ranging livestock. This produced unsanitary conditions for the innercity masses.

Additionally, this shift toward mass production and industrialization affected the struggling rural farmer. Hogs and grain were decreasing in value due to increasing competition causing a need to adjust to new market demands. The drastic changes of the New South movement were met with many social, governmental, and economic problems that plagued the city during a very long transition lasting into the twentieth

century. However, industry boomed and the turn of the century was marked by embellished nicknames such as “Queen City of the Mountains” and “Greatest Jobbing Market of the South” (McArthur 1976).

## Early-Mid 20th Century (1900-1950)

The early twentieth century was marked by continued rebuilding of Knox County especially in transportation. Innercity road repair became a priority to Knoxville citizens and the courts ceased work outside a five mile radius (Rothrock 1946). Funds were also appropriated for other civic improvements such as schools and the convict workhouse. However, extensive amounts of fraud within the county bureaucracy inhibited advancement (McDonald and Wheeler 1983).

This trend was overturned by A.D. Collier who became County Judge in 1903. He subsequently lowered the county debt while improving education and transportation for the betterment of the citizens and commercial interests in Knoxville. Introduction and popularity of the automobile made road improvements necessary for continued progress of Knoxville commerce. This was supported with taxation and fund allocation by the courts for highways and other roads. Unfortunately, government support was not realized as construction projects would not materialize and existing roads suffered from neglect. This was overwhelmingly due to a lack of citizens providing labor, in lieu of tax payment, and problems with efficient convict labor from the workhouse (Rothrock 1946; Patton 1976).

The lack of city support of transportation improvements is evidenced through the funding of other civic projects such as the University of Tennessee agriculture experiment and the Appalachian Exposition (Rothrock 1946). The courts continued to

push for road improvement resulting in bonds awarded to the Good Roads Commission for allocation. The commission launched the county into the modern era despite citizen apathy. However, financial demands for road construction and repair caused county budgeting problems. Maintenance was in such demand that the County Court passed a resolution in 1919 "recommending that automobilists carry a shovel and fill a hole a day, and observing that it was better exercise than golf and much more profitable to roads" (Rothrock 1946:176).

Due to the lack of funds and participation the county roads were in widespread disrepair, and there was a lack of efficient routes to other regions for trade and transportation until 1920. At this time state and federal funds were allocated to assist counties in building and maintaining a road system. This proved to be of great benefit to Knoxville commerce and later tourism to the Great Smoky National Park. The country's emphasis on developing a strong transportation system and the county's focus on education is apparent by 1930 as stated by Rothrock (1946:185):

> Over 60 percent of the 1930 budget went for public school and public roads…Moreover, nearly 90 percent of the bonds outstanding on January 1, 1930, were issued for schools, roads, and bridges.

Therefore, the shift in transportation caused dispersal and spread of urbanism to larger areas as personal mobility became the norm. The small rural farmer who survived the previous onslaught of industrialization and the movement toward mass production of livestock was likely further affected by road improvements and rapid transport. At first, benefits of improved roads created ease of transport to market and increased consumerism. However, with time and further technological advancements, these farmers found competition from large producers with the ability to ship at low costs increasingly

devastating to their traditional lifestyle. Simultaneously, farm land was encroached by urban development as city and personal transport became popular. Appalachian individuals found farming to be less and less profitable and were forced to seek other means of employment, which has led to many of the current social and financial problems that plague areas of the Appalachian region.

## Chapter IV

## The Meat Market, Livestock, Southern Foodways, and Sanitation

Frontier Period (circa 1780-1814)

Early Southerners depended on wild game such as deer, raccoon, and squirrel according to some historians such as Hilliard (1969, 1972) and Rothrock (1946:72). Hilliard (1969) documents that wild game was the most served food in the early days of southeastern settlement including common dishes of wild ducks, turkeys, and venison available in both rural and urban homes. However, archaeological evidence indicates a heavy reliance on domestic animals (Patterson 1998b; Lev-Tov 1994). Home raising, killing, and butchering of animals were the only means of attaining domestic meat during the early settlement period of Knox County. Swine appears to have been the most utilized species showing increasing numbers with duration of settlement. This is supported by Hilliard (1969) who states that, "a stock of hogs was considered essential to all new holdings" in the southeastern frontier. It is likely that pork was also the first domestic meat available to Knoxville's metropolitan area and to hunters who no longer found bountiful wild game in their areas.

It is during the late eighteenth century that the southern diet stereotype appears, resulting from this era of initial livestock imports by settlers. Antebellum references to an over abundance of pork on the southern table are abundantly noted in early travel accounts (Hilliard 1969), indicating that swine were raised more than cattle. Some estimated per capita pork consumption as three times that of Europe during this time period (Root and de Rochemont 1976). Additionally, there is a myriad of quotes from this period expressing a commonly held belief that pork provided energy for normal working

people, and "…invariably appeared at every meal…" (Hilliard 1969). Hilliard (1969) states that beef played less of a role in subsistence of the common man due to expense and poor preservation (without refrigeration) and was a food of the wealthy diversified farmers and larger planters.

Rothrock (1946) gives a typical example of early farm necessities including the rifle and axe that were used for hunting and butchery during the early frontier period. Therefore, the archaeological record should reflect the latter tool use on early historic sites of the region with butchered remains being chopped instead of sawn. Klippel (2002) indicates that much of early historic butchered remains show evidence of this "hacking" that is difficult to distinguish from prehistoric butchering (if of local species such as deer). This may be tied to the lack of available saws unless brought from the Old World or obtained through indirect overseas trade. Present research indicates that most steel saw manufacture was in Sheffield, England, making the saw a valuable trade commodity that was likely sold in Knoxville from time of settlement.

There are many advertisements offering trade goods for furs (presumably from deer and raccoon) during the early settlement of Knoxville suggesting that hunting was still practiced with some frequency for home consumption. By the 1790s a local paper, the Knoxville *Gazette*, was in circulation and contained advertisements indicating a growing economy in both currency and trade of furs and skins to local retailers (Knoxville *Gazette* 1795). Also, a 1794 account of Knoxville by a visiting traveler reports the presence of ten stores in town (McAurthur 1976). This suggests that the economy was diverse early in Knoxville's development and many goods were available to residents. The city's ideal location provided trade opportunities with Native Americans

(mostly Cherokee) and with large urban areas to the north including Richmond, Baltimore, and Philadelphia, creating far-reaching networks for nonlocal goods in Knox County (Rothrock 1946).

A developing Knoxville meat market is documented in the late eighteenth century consisting of direct purchasing of surplus animals from outlying farms. These were butchered and distributed to the urban population, and encouraged the abandonment of wild game utilization (Rothrock 1946). Other meat sold in the town market was likely the farm surplus from pig butchery or beef rings (a group of families that butchered and distributed beef among themselves) due to problems of transportation and preservation (Robinson 1927; Davenport 1922). There is a very early reference to a new "beef market" in the local paper (Knoxville *Gazette* 1794) without any mention of pork. This suggests that cuts of domestic pig may have been common in the urban market, but that beef was a rarer commodity in the city. Due to advertisement, cattle may have also been sold to the wealthier urban sector while pork was more abundant, lesser priced, and heavily associated with local farm butchery and the less affluent consumers (McFall 1927; Hilliard 1969; Root and de Rochemont 1976). There is some indication that the sale of "feeder cattle" to larger meat markets in Baltimore and Philadelphia was practiced (Rothrock 1946) in addition to local sale.

It is not known when the first butcher opened for business in Knoxville. Davenport (1922) documents that butchers would visit outlying farmsteads and purchase surplus animals that they would then slaughter and sell at their place of business, local market, and possibly on a traveling meat wagon. These meat cuts were likely standardized along the Georgian ideal in the form of sawn hams, steaks, etc. and sold to

urban consumers as was popular in the late eighteenth century (Deetz 1977). The demand for meat increased with Knoxville's growing urban population requiring increased production from outlying rural farms. This encouraged large holdings of domestic animals for local trade, and caused a shift from home production to systematic animal husbandry (Gray 1933). Results are evidenced by almost complete reliance on domestic animals for subsistence by 1795 (Rothrock 1946), indicating that farmers were quick to embrace the profitable market opportunities of Knoxville.

With the growing population and greater demands for meat products, animal husbandry had increasing importance and was practiced at a larger scale fairly rapidly. Supplemental livestock were driven from other areas by the early nineteenth century. Pig driving is particularly noted of East Tennessee although specific information for very early periods is lacking. Burnett (1946) describes hog driving by foot through the county to large markets of the Carolinas and Georgia. Frontier evidence of livestock driving over the mountains is documented as early as 1796 (Sondley 1930), but likely was practiced prior to this date and was common to frontier settlers. Burnett (1946:87) describes one primary route for these large drives:

> …the French Broad gorge offered by far the most practical route. By the end of the first quarter of the nineteenth century, the road along the French Broad had become so congested with droves of stock that efforts were made to relieve the congestion by building other roads, but with small success.

A turnpike was built along the route by 1827 and was heavy with hog traffic to supply the southern plantation's slave population demands. Little other livestock were represented, especially from October through December (Burnett 1946).

These developments parallel national trends toward greater meat marketing. After the Revolutionary War, western settlement increased. Many of these pioneers found that the Ohio Valley's fertile soil was excellent for corn, which could be used for hog feed. "As time went on, agriculture spread through the great mid-western area known as the Corn Belt and resulted in its becoming the most profitable hog raising section in the world" (Swift and Company 1937:6). Cincinnati became the pork packing center due to railroad and water access. Newly established ranches west of the Mississippi River also contributed with professional drovers delivering cattle, hogs, and sheep to well known collection points such as St. Louis and Chicago (Swift and Company 1937). How this business affected Knoxville's markets is unknown. According to the historic record, it appears that most meat was supplied and consumed locally. The transnational meat market mostly provided for the substantial population of New England (Swift and Company 1937).

Therefore, one sees a drastic change in subsistence during the frontier period that is primarily the result of growing commercialization within Knoxville and other regions. The idea of an East Tennessee settler hunting in the abundant forest lingered, but reality reflected full time farming (mostly of corn to feed the hogs) and raising of livestock. Many urban residents often owned a small number of livestock (usually hogs) that were allowed free range and sold or butchered when needed by the household (Faberson 2001). Though pork was popular, beef was also available as evidenced by early advertisements.

## Antebellum Period (1815-1859)

Previous descriptions of southern foodways appear to remain consistent through the early nineteenth century. The growing population of Knoxville required more meat

from outlying areas as evidenced by an established market house, but there was still a heavy reliance on pork. The ratio of swine to cattle was 2:1, and far exceeded other areas such as the Great Valley of Virginia that had 1:6 indicating the importance of this species in East Tennessee due to relatively simple raising and preservation (Rothrock 1946). The high ratio of hogs in East Tennessee is likely tied to urban demand and trade with the southern cotton states, and the less ideal conditions for cattle pasturing in the mountains. This is supported by Rothrock (1946) who states that some varieties of domestic animals did not thrive under the hot and humid conditions of the Southeast. Therefore, stock was not of the highest quality during the frontier period (Rothrock 1946).

The Knoxville meat market continued to operate and grow as population increased (Rothrock 1946). The Market House, established in 1816, sold cuts of meat and live animals to regional consumers (Etnier 1991; Rothrock 1946). Bonser and Mantle (1945) state that the market scales were recognized as the official scales of Knox and surrounding counties indicating the significance of this market in East Tennessee.

Many urban residents owned free ranging livestock that created a source of supplemental income and food when needed. An effort to restrict urban livestock began as early as 1802 with the first meeting of the Knoxville City Council that outlawed slaughter houses and free-ranging hogs. It also ordered city lanes clear of livestock refuse including hides, feces, and carcasses (Faberson 2001; KCCM 1802). In 1838, officials declared it illegal to erect any "pig stye, cow pen, hen coop or pigeon house and allow them to become offensive from stench or noxious smell" (KCCM, 1838). However, this legislation was apparently not enforced and subsequently ignored by Knoxville residents as evidenced by multiple reenactments over the century.

Increased demand for meat by the growing population of Knoxville required higher yields than maintained by local farmers or urban dwellers and called for market expansion (Davenport 1922). Dependence on outside meat sources is evidenced by livestock driving becoming a "specialized employment, with more or less standardized practices" and Knoxville becoming a standard stop for drivers heading south to the cotton states (Gray 1933). Therefore, drivers were in high demand to supply animals to butchers in Knoxville, and would travel long distances with herds both to and from such urban centers as Philadelphia, Baltimore, and Chicago.

Demands of the explosive cotton industry to the south, and a need for meat to provision large slave populations further increased farm production and marketing in the area during the early nineteenth century. It is known that swine were driven into Knoxville from surrounding areas for salting and packing. Shipment was by barge to the cotton states prior to the Civil War (Rothrock 1946). It is likely that local farmers and herders also provided a substantial amount of pork to this business, but little is known about production rates during this time period. The beef market continued operation, but does not appear to be as significant in the development of the East Tennessee economy.

In the national arena, meat packing and distribution became more centralized. Meat packing plants and livestock markets needed good railroad access to many cities. Animals at market were slaughtered by the companies and transported to nearby plants, while others were bought and shipped to packing companies within New England (Swift and Company 1937). Chicago became the industry's hub in 1848 with the opening of the famous Bull's Head Market. However, Knoxville was not connected to the railroad system until 1855, and does not appear to heavily participate in this trade.

Pork was a southern mainstay by the mid-nineteenth century, and ensured continued success of a swine market in Knoxville that was a part of many mixed farmers' incomes to some degree. However, advent of the railroad increased cattle shipment to the North while the hog market, though still active, dwindled in the South (Rothrock, 1946; *Press and Herald* 1868 and 1869; *Knoxville Daily Herald* 1867). It is likely that herd drovers were still needed to provide enough meat for the urban population due to continued preservation problems and transportation, but this pattern was soon to change.

Bellum or Civil War Period (1860-1866)

Not a great deal is known about this period's meat market activity. Through the unrest felt in Knoxville during the Civil War, it appears that the meat market continued. What urban availability of meat was like is not documented. The widespread devastation of small farms including the raiding of livestock holdings by troops likely had a significant impact on availability in the market. Difficulties in transport between regions due to railroad destruction caused a lack of goods including food stuffs and a price inflation of the supplies available. Unfortunately, greater information on subsistence and commercialization of such a brief period is not available.

In Chicago, the meat market had an enormous increase in business as troops required rations in the form of canned meat. This "paved the way for profound changes which were destined to revolutionize the entire industry" (Swift and Company 1937:9). These advancements are further outlined in the following sections.

Postbellum (1867-1899)

The Civil War took its toll on Knoxville commerce. The affected Appalachian farmers were especially noticed and they received aid from charities and some relief from

the federal government (*Brownlow's Knoxville Whig* 1865). However, Knoxville recuperated livestock losses fairly quickly having replenished numbers by the 1870s (Rothrock 1946).

Emancipation resulted in loss of the large pork market for slave rations. Also, railroad improvements resulted in western competition and lowered local crop sales causing a shift in East Tennessee agricultural production. This is evidenced by an increase in hay production, a decrease in hog production, and an increase in beef and dairy cattle (Table 2.1).

It was also around this time that better breeds of beef cattle began to be raised within the county (*Knoxville Daily Press and Herald* 1872) such as Herefords and Angus. This coincides with the beginning of quality cattle raising in the American Beef Belt. This region included the fertile lands of the north-central Mississippi Valley. Other lesser quality cattle were being driven and shipped from the western ranches, which increased competition in the beef market. The beef market lacked two elements for success, efficient trans-continental transportation and refrigerated rail cars (Swift and Company 1937). Beef market increases are tied to George H. Hammond's invention of the refrigerator rail car in 1875 (Davenport 1922; Swift and Company 1937), and the expansion of the railroad into the depths of the American Beef Belt (Swift and Company 1937).

In Knox County overall, hogs continued to be raised in great numbers with advertisement and support of the local market. This suggests that most meat consumed in the city was produced within the county (*The Knoxville Daily Press Herald* 1870;

**Table 2.1: Livestock in Knox County, Tennessee according to the Agriculture Census**

| Livestock | 1840 | 1850 | 1860 | 1870 | 1880 | 1890 | 1900 | 1910 | 1920 | 1930 |
|---|---|---|---|---|---|---|---|---|---|---|
| Milch cows | - | 4314 | 3969 | 4543 | - | 6936 | - | 8814 | 4893 | - |
| Other cattle | 13876 | 4600 | 5123 | 6051 | - | 9374 | - | 10936 | 17648 | - |
| Sheep-Goat | 11604 | 12219 | 10329 | 13441 | - | - | - | 770 | 961 | - |
| Swine | 36952 | 38005 | 27793 | 22519 | - | 20997 | - | 10695 | 16337 | - |

Rothrock 1946). Further evidence includes documentation that feeder hogs were raised to 150-200 pounds at higher elevations, and then brought down to the valley to fatten and take to market around 300 pounds in November and December. Other lower grade corn-fed hogs were brought to market in January or February (*Knoxville Daily Chronicle* 1871).

Continued importance of swine in the urban market despite beef availability supports Hilliard's (1969) assertion that southerners had a preference for pork. This trend may be caused by pork's lesser cost, and/or ready availability due to local production and processing. Additionally, evidence for an ethnic preference for pork by some migrants such as Germans and rural Appalachians has some support in the historic and archaeological record. These reasons all seem plausible for the beef emphasis in historic documents. They likely all interact, resulting in the continued demand for pork in Knoxville.

After the war, the population boomed due to railroad access and emancipation. This caused a need for significant changes in urban lifeways and the meat industry. Faberson (2001) researched this time period (referred to as the Progressive Era) in Knoxville. It is marked by a need to restrict or limit certain urban activities for the betterment of overall public health. Much of the resulting civic legislation concerned

livestock practices and was resisted by the general populace in many ways. Free-ranging livestock remained one of the largest problems encountered by the growing city. Roaming cows and pigs caused property destruction and spread of disease (McArthur 1976; Strauch 1987). Though these animals served as supplemental income to many residents prior to 1850, an overabundance of free-ranging animals, their waste, and byproducts of butchery/processing became an increasing concern to public health. McArthur (1976) and Ogle (1999) describe the less than beautiful conditions in Knoxville as blood and feces covered streets with butchery refuse piled to either side of Market Square, the commercial center.

Regulations to control unsightly and unsanitary conditions pertaining to free-ranging livestock husbandry and butchery were reenacted with specific consequences in 1868. Those animals found unpenned were impounded for a three day period, then sent to auction for the city's profit (KCCM 1868). Yet, this regulation was not heeded by most residents since the "hog law" as it came to be known was enacted again in 1876 (Tadlock 1876). How this law finally came to be effective is unknown, but Faberson (2001) reports that it was no longer a large problem for the City Council by the turn of the century. This would suggest that prior to the twentieth century butchery of hogs was continued to a limited degree within city limits at private residences and should be visible in the zooarchaeological record.

### Early-Mid 20th Century (1900-1950)

The turn of the century was marked by increased movement into urban areas, and continued opportunities in a profitable market. Growing interest in land/soil conservation and continued western competition encouraged the dairy market which became the main

livestock enterprise of Knox County (Table 2.1). Likewise the hay crop for feeding livestock increased while fenced pastures were typically of native grasses and used primarily for milch cows (Rothrock 1946). There is evidence for continued resistance to previous sanitation mandates has continued evidence in the early twentieth century. This is recorded by the Knoxville Board of Health (KBH 1908) that noted 52 dead cows on urban premises, and by Welles (1919) who reported that some residents owned hogs and had wallows on their property.

Emphasis on dairying co-occurs with decreases in swine numbers for the county (Table 2.1) and cultural shifts to beef consumption with western competition. Other (beef) cattle did not decline in number in the county, but quality continued to increase including higher numbers of Herefords and Angus breeds and continued activity of the beef market.

Knoxville had two packing houses, an abattoir, and stockyards (Rothrock 1946). The East Tennessee Packing Company, established in 1893, was located on the south side of the Holston River (Figure 1.1). It is likely, though not stated directly, that it was from this if not both packing houses that the pork products were exported to the cotton states before the war. Other meat oriented businesses included the T.L. Lay Packing Company established in 1920, the Knoxville Abattoir Company in 1899, and the Union Livestock Yard in 1932 (Rothrock 1946). Other stockyards preceded the latter including the Union Yards in 1928, the East Tennessee Stock Yards in 1902, and the Knoxville Stockyards in 1891 (Rothrock 1946). Though these are the only documented companies found in the literature, there surely were other unspecified outfits such as large and small scale slaughter houses prior to the turn of the century as referenced in previous sections.

The great increase in meat marketing locally reflects the explosion of the same industry across the nation. Technological advancements mechanized the process of livestock butchery and reduced waste. The United States became the leading meat packers of the world with market houses standard in every large town and city and exports abroad. The complex business of shipping meat products from one place to the next while maintaining freshness became increasingly efficient with time, and has created constant availability for consumers.

Therefore, the time period from the Civil War to the mid-twentieth century marks a drastic shift in Knoxville's meat consumption and marketing. The mainstay of the southern diet, pork, was slowly replaced by beef with the advent of refrigeration and ease of transport. Simultaneously, the small Appalachian farmer found dwindling opportunities in the wake of mass produced monocropping, industrialization, and western competition. These factors led to an increasingly commercialized urban meat market with decreasing involvement by the small farmer that is ultimately evidenced in today's modern grocery stores.

## Chapter V

## History and Identification of Butchery Saws

Evidence of butchery saws in the late eighteenth and early nineteenth century is rather sparse in the record. Though ample efforts were made to find information through archival research and inquiries on international internet zooarchaeological list servers, data was limited at best. More information on this widely used tool would be extremely helpful to the present study. However, extensive research yielding few results has led to the following synopsis of early saws with much greater information on those produced by the Disston Saw Manufacturing Company since 1840 (later known as Disston's Keystone Saw Works) (Silcox 1994:4). Emphasis will be placed on characteristics of each modern saw studied that define similar but unavailable historic saws. The modern comparative sample produced kerf wall markings similar to past saws based on characteristics described below. To ease discussion of these tools, only the modern saw names are used throughout this thesis with the understanding that these represent the similar historic form until their modern invention and/or production in the United States.

European saws, particularly ones made in Sheffield, England, were produced in the eighteenth century and considered a part of the colonists general tool kit (Rothrock 1946). However, information on product manufacture is generally absent from the available historic record. Shown in Figure 5.1 and 5.2 are two saws known to be available to colonists and likely part of a 1790s Tennessee tool kit. An advertisement for hand saws from the 1824 *Knoxville Register* (Figure 5.3) proves that this tool was available for purchase. Additionally, a page showing hand saws from an 1816 Sheffield, England catalogue (Figure 5.4) (Smith 1816)

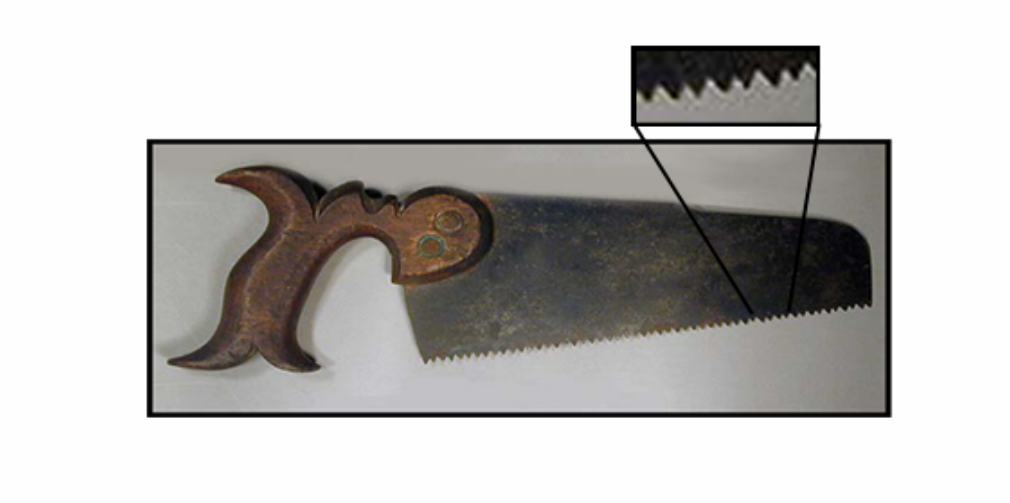


**Figure 5.1: English Hand Saw from 18th Century with Large Vertical Teeth and Possibly Alternating or Raker Set**

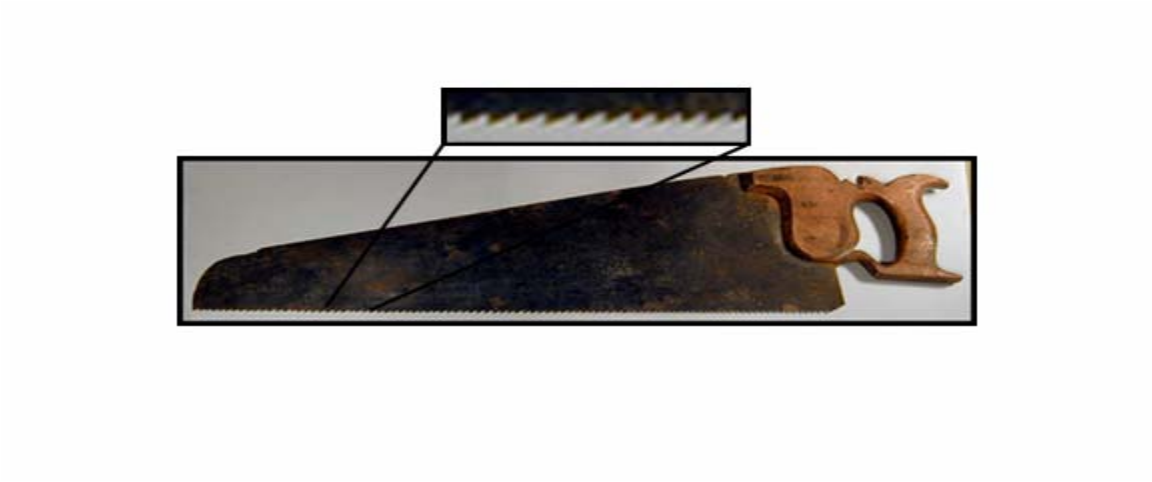


**Figure 5.2: German Browne Hand Saw (unknown date) with Small Angled Teeth**


**Figure 5.3: Advertisement for Hand-Saws from *Knoxville Register*, October 29, 1824**

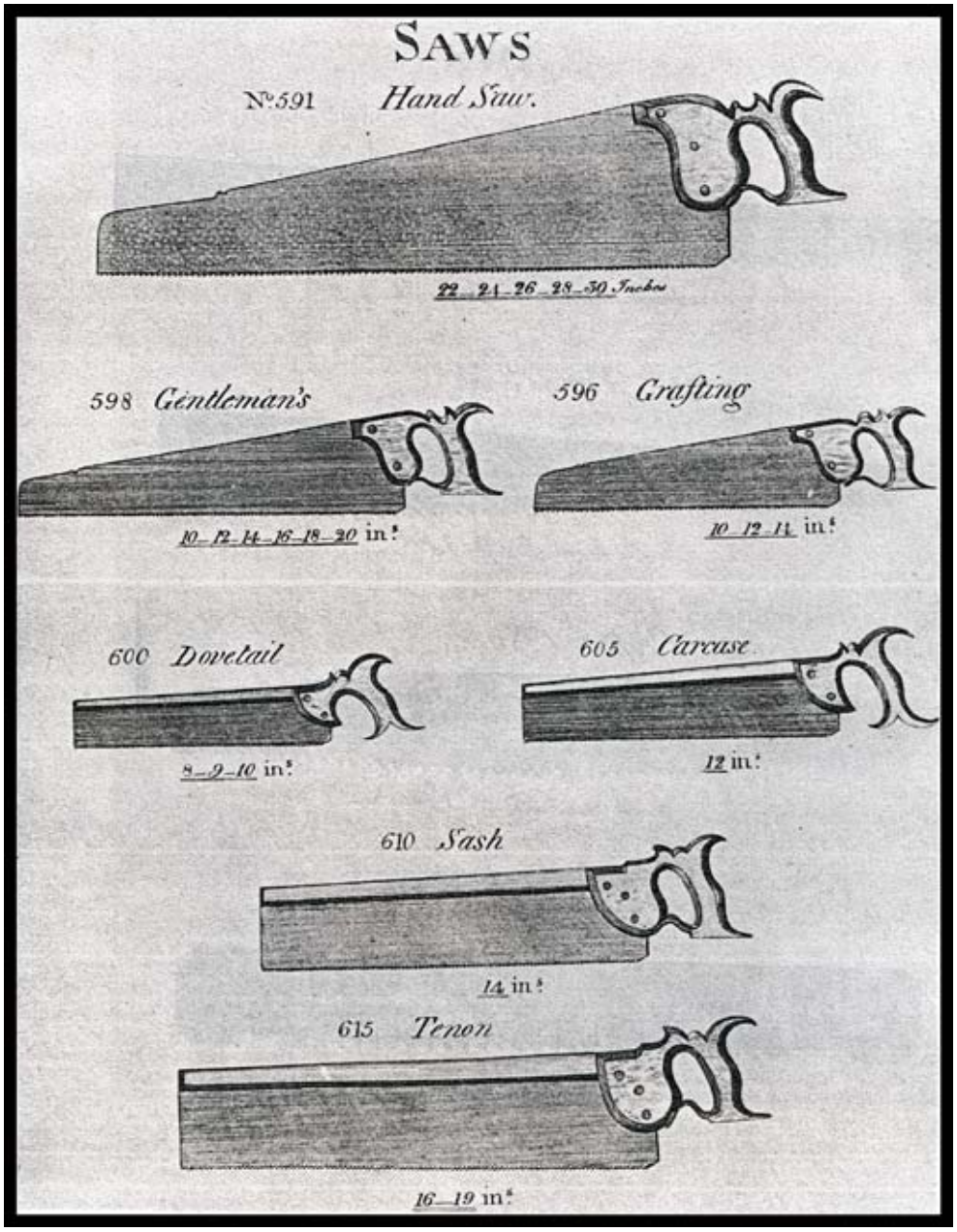



**Figure 5.4: Saws in 1816 Catalogue from Sheffield, England** (Smith 1816)

is the only available pictorial record of very saws prior to 1850. Note that the illustrated saw teeth have different forms such that they are larger and vertical in the English saw (Figure 5.1), while smaller and angled on the German Browne (Figure 5.2). Tooth size and shape are responsible for the differing saw mark evidence produced by more modern saws discussed more thoroughly below.

American saws have much better documentation available for research. There were several saw making companies around the Philadelphia area. These were surpassed by the Disston Manufacturing Company that "was to become the largest firm of its kind in the world" (Salaman 1975). Therefore, this study focuses on these tools produced by this company (Figure 5.5) after 1840 for description and comparison. The following saws were likely produced in Europe prior to, and during historic American manufacture; however, their history is not traceable within the scope of this thesis. Other American

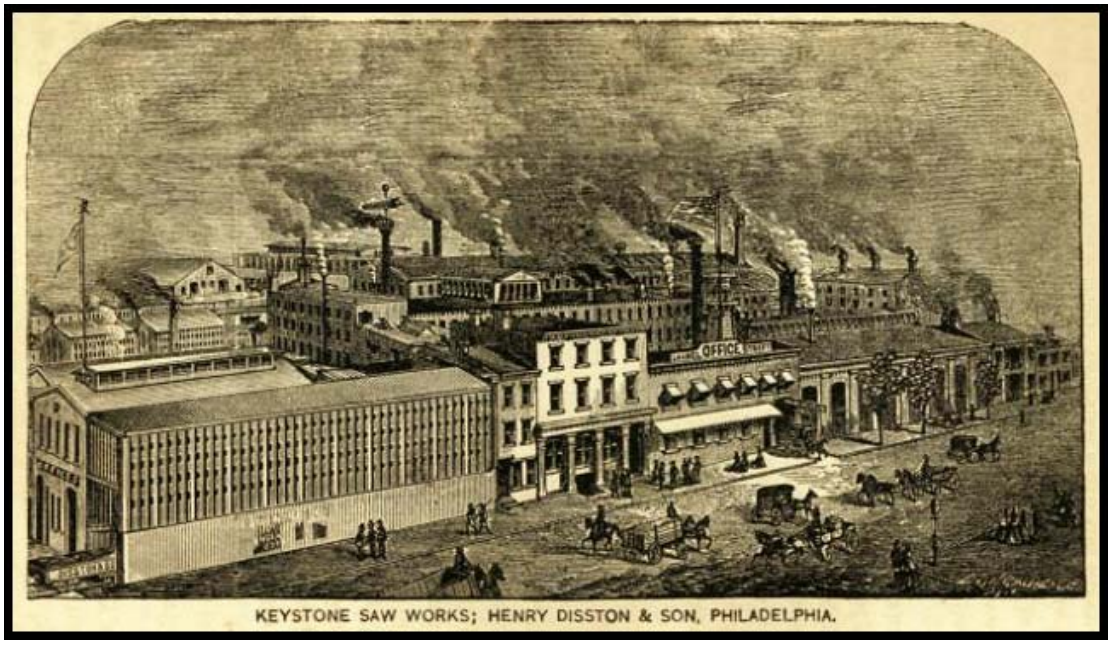



**Figure 5.5: Disston Saw Manufacturing Company established in 1840**

companies developed with time, yet have less documentation and are not emphasized in this overview.

Characteristics of specific saw blades can be described through general comparison of the teeth and the set of these teeth. Blade teeth can vary in number and size with particular forms being more effective for specific functions. Generally, blade teeth are expressed using teeth per inch (TPI) for fine-toothed blades, or points per inch (PPI) for large-toothed blades (for a more thorough discussion see Symes 1992; Jackson and Day 1978). These tooth measurements that assist identification when the full cut is available for analysis (such as in forensic cases), become relatively useless on eroded and fragmentary zooarchaeological remains. Therefore, the author chooses to keep description of blade teeth general by using relative terms such as "many small teeth" compared to a "low number of large teeth".

The trend is that large-toothed (low TPI) blades are more efficient for cutting soft material including wood, while blades with many small teeth (high TPI) are best for cutting hard materials such as bone and metal (Symes et al. 1998:394). Evidence of these two different saw types produce very different patterns on bone. Large-toothed blades create rough, gouging cuts while small-toothed blades produce a smooth cut with fine striations (Guilbeau 1989). To further complicate this characteristic, saw teeth can be sharpened in two ways including on the front or both the front and back of the tooth (Symes 1992). Sharpening differences do not seem to greatly affect the residual saw mark evidence and were not helpful in this study.

Another characteristic of saw blades is the tooth set. The set can be described as the misalignment of the teeth that serves to create a wider cut (often called kerf) than the

width of the blade to reduce binding while in use (Symes *et al* 1998). Modern saws are characterized as having three distinctive sets including alternating, raker, and wavy sets that are illustrated in Figure 5.6. The alternating set is characterized by all teeth extending from a lateral line with every other tooth set or bent in an opposing direction. The raker set is similar to the alternating set with every second or third tooth extending straight (unbent), which effectively "rakes" material from the cut during use. These sets are typically applied to blades with large teeth (low TPI) used for soft material (Jackson and Day 1978; Symes et al 1998:97). The wavy set, primarily used on blades with small teeth, is made with four to eight teeth creating a wave pattern upon vertical observation (Jackson and Day 1978:98).

Identification of the saw used on butchered remains from the sampled historic sites was the primary consideration of this study. Previous research by forensic graduate students at the University of Tennessee, Knoxville, laid the ground work for comparing kerf marks of particular saws to butchered faunal remains. Saws considered in this study include the back (mitre-box), hack, crosscut, kitchen, meat (Srnka 2002), and band saw in a taphonomic study of different kerf mark identification on bovid bones. Having assisted with this study, the author found that this method might have use in zooarchaeological studies. Additional experimentation with the hack, kitchen, and meat saws was conducted by the author and is described below. The band saw, a tool used extensively in present meat packing and retail establishments, is also investigated with evidence collected from commercial butchers.

The following descriptions of saw mark evidence is a combination of Srnka's (2002) original observations, and personal observations found to be most significant in

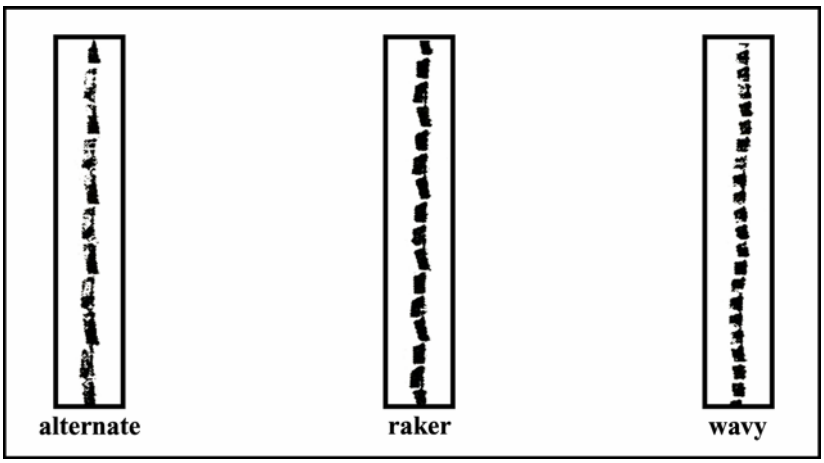



**Figure 5.6: Types of Saw Tooth Set** (adapted from Andahl 1978)

identification of faunal material that, unlike most forensic cases, has often suffered the ravages of taphonomic processes. Each comparative and archaeological specimen was observed under magnification ranging from 10-40X depending on the size and comfort of the analyst. Observations were then noted for all comparative specimens, and recorded for later tabulation of each archaeological specimen from each site.

The back saw or mitre-box saw (Figure 5.7) is a very old style wood cutting tool manufactured in the early eighteenth century, if not earlier, and is still in use today. It can be described as a large steel blade, with an alternating tooth set of relatively large teeth intended for soft material. After the nineteenth century the blade was made to taper or narrow from handle to toe, and from the teeth to the back edge causing friction along the cut wall (Srnka 2002). Resulting saw marks produce striations having medium density or closeness, are shallow in depth, straight, and parallel. Most distinctive is a polishing of the top left kerf wall due to the blade friction, and was found most useful in analysis. Due to a lack in depth of field, these characteristics are difficult to illustrate with current

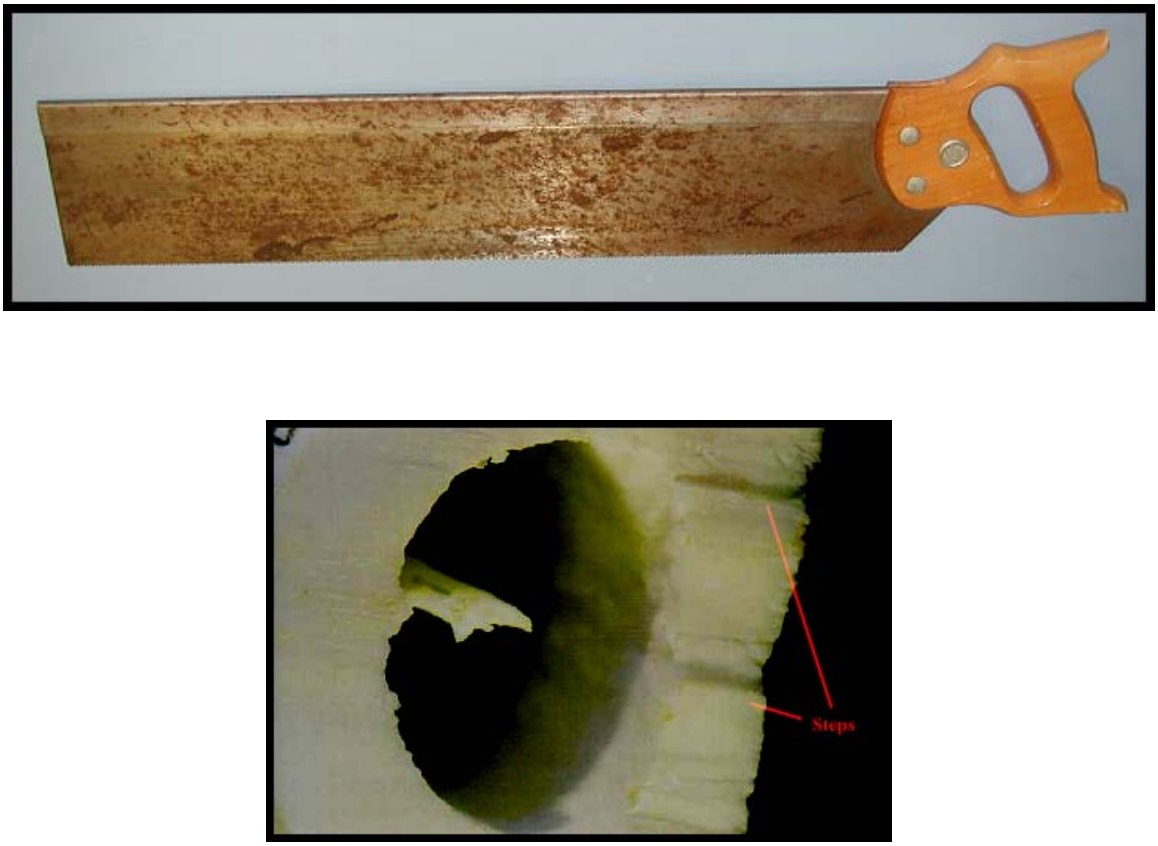



**Figure 5.7: Back Saw and Cut Evidence**

microscopic photography. However, they are shown and labeled in Figure 5.7 for comparison to other saw evidence.

The modern hack saw (Figure 5.8) was produced by the early 1870s in America (Henry Disston and Sons, Inc. 1926:27), and was used for Srnka's (2002) experiment and this study. However, an earlier version (not presently available) was produced in England by 1770, and is reported to have different but unknown characteristics. The present form has a hard tempered steel blade (Henry Disston and Sons, Inc 1926) usually having a raker or wavy tooth set. There is a comparatively high number of small teeth indicating its use for harder materials particularly metal (Jackson and Day 1978; Salaman 1975). Ease of use is noted in experimentation as this saw was by far the most efficient for the author.

Evidence of this saw includes densely packed, parallel striations. They are also comparatively deeper than the back saw, but not as deep as the kitchen and meat saw striations. Band and hack saw evidence is very similar. However, the hack saw lacks regular and uniform striations of the complete kerf wall since it is hand operated. The striations become increasingly irregular when as the blade is loosened, causing binding. Flexing of the blade during use causes a distinctive wave appearance on seemingly random striations, and wave pattern to the overall surface topography. This is not observed on band sawn bone due the electric operation. The cut surface also has a wave pattern to the overall topography, yet does not have striations at the wave crest as seen on meat sawn material discussed below.

The crosscut saw (Figure 5.9) is the oldest style hand saw and considered a common tool of frontier Euro-Americans. Its first manufacture is unknown, but it was




**Figure 5.8: Hack Saw and Cut Evidence**

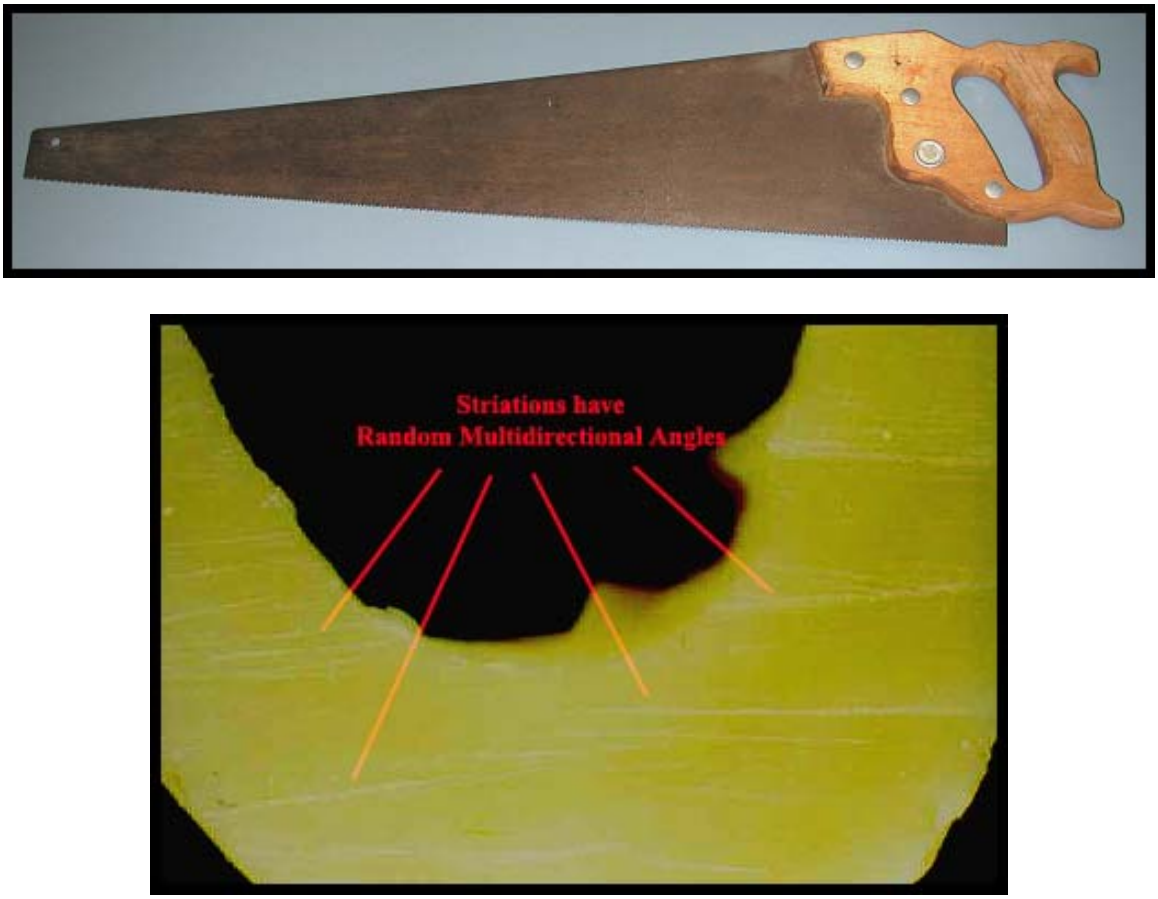



**Figure 5.9: Crosscut Saw and Cut Evidence**

likely produced in England with the Disston Company producing crosscut saws since 1840. This is documented by Disston and his colleagues agreeing that, "they have been making crosscut saws as long as they have been in business" (Henry Disston and Sons, Inc. 1926:23). Though primarily a wood cutting tool, it may have been used as a multi-purpose inexpensive saw when better equipment was unaffordable or not available (Srnka 2002). It is characterized as a large steel tapered blade with a comparatively low number of large alternating teeth indicating its use for softer materials and maladaptive use for butchery of bone. Evidence (Figure 5.9) includes less dense and shallow striations cut at

random multidirectional angles with an overall jagged appearance to the surface and edges consistent with Guilbeau's (1989) assertion.

The kitchen saw (Figure 5.10) has an unclear history, but is found in catalogues such as Sears and Roebuck and Montgomery Ward in the late nineteenth century (Sears and Roebuck 1897; Montgomery Ward 1895) and is also referred to as the ham saw (Salaman 1975). References to its use are within the home such that it is "used for cutting in the kitchen" (Salaman 1975:425), and "it was probably used most in country homes" (Disston and Sons, Inc. 1926:29). It was likely available at roughly the same time as the meat saw prior to the Civil War since it is a smaller version (maximum length 12 inches (Montgomery Ward 1895) of this saw. Characteristics include a detachable steel blade and small teeth that cut bone with relatively little effort compared to the larger-toothed saws. Disston and Sons (1926:29) recognize that "the kitchen saw is an adaptation, for the home, of the butcher [meat] saw, which is resembles on a small scale."

Evidence is similar for the meat saw and includes less dense striations and waves of random striations. Based on experimental results, the striations are straight and parallel when the blade is screwed taut or tightly into the frame. However, increasingly random angled and more deeply inset cuts are produced as the blade is loosened and increased binding occurs with blade flexion. Other qualities of the kitchen and meat saw evidence can include a braided appearance, sharply angled striations, and wavy surface topography with striations. Each of these traits is illustrated in Figure 5.10, 5.11, and 5.12 for comparison, and are important to this study due to kitchen saw utility in historic America.

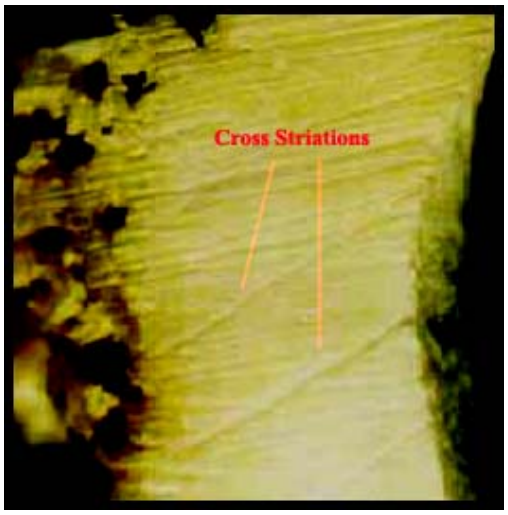
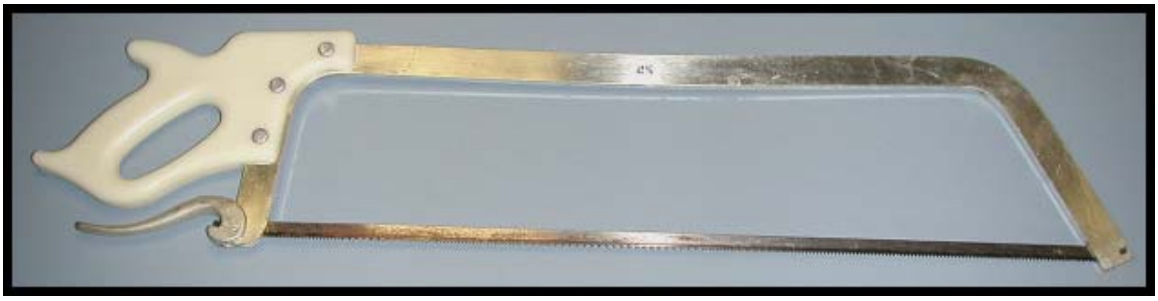




**Figure 5.10: Kitchen Saw and Some Cut Evidence**



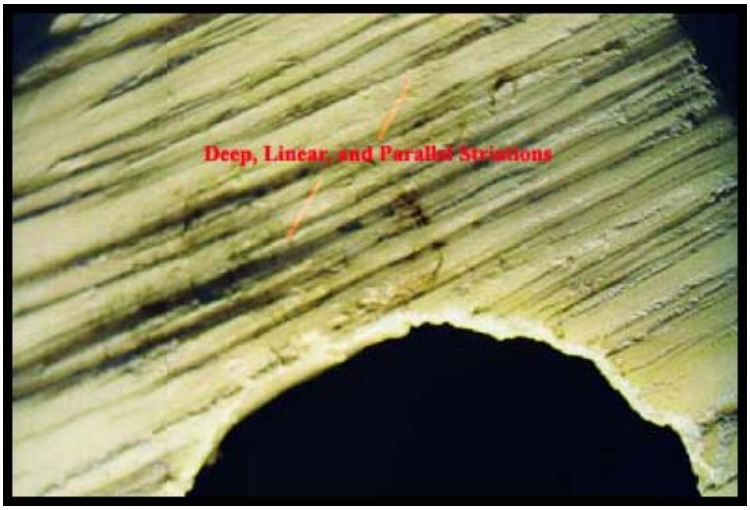




**Figure 5.11: Meat Saw and Some Cut Evidence**

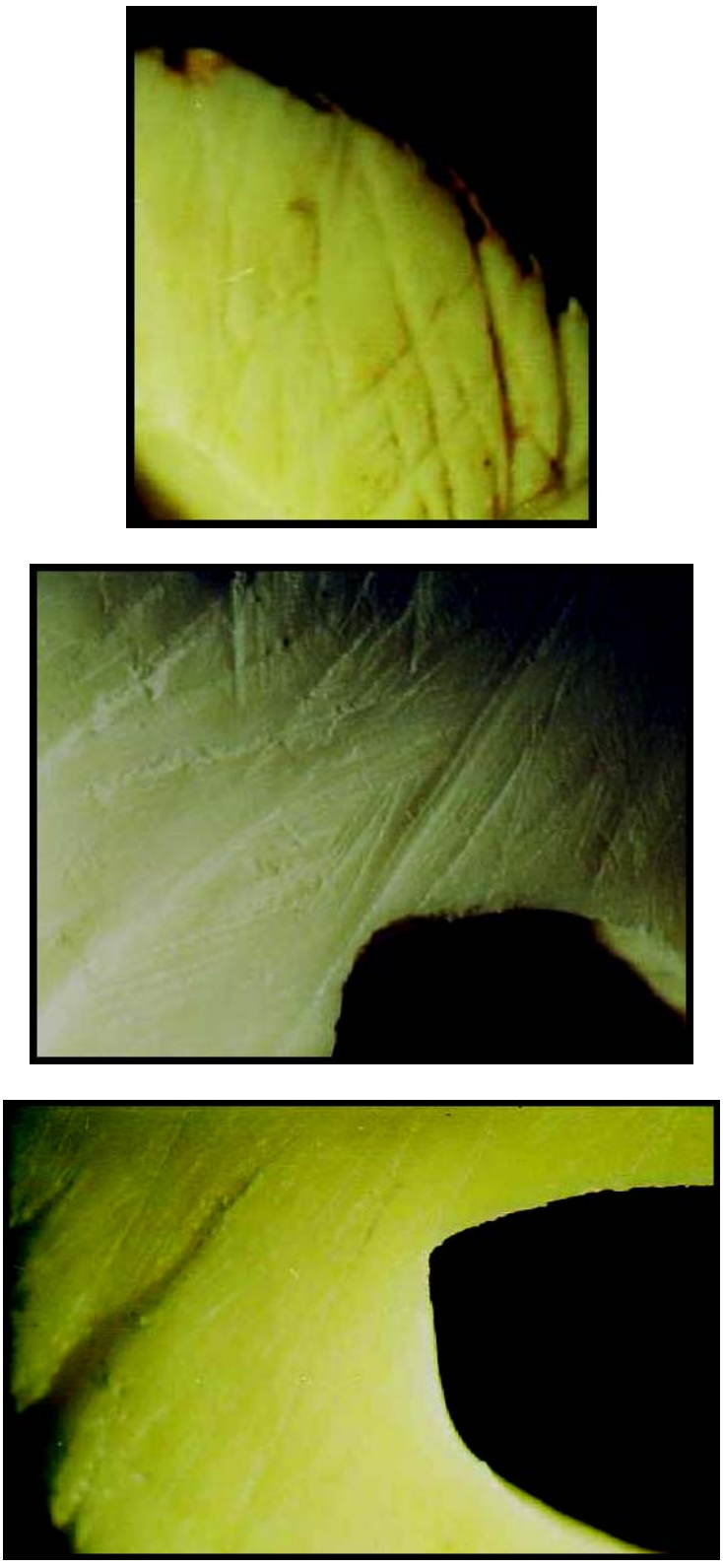


**Figure 5.12: Variations seen in Kitchen and Meat Saw Experimentation**

The meat saw (Figure 5.11) was invented prior to 1870, but attained its current form by 1897. It is a softer more flexible version of the hack saw (Henry Disston and Sons, Inc. 1926). A reference to military use for brigade field butchery in 1865 (U.S. War Department 1865) indicates that this tool was readily available by the Civil War. It was also a more expensive tool in the Sears and Roebuck catalogue of 1897 and 1902, therefore, less likely purchased by amateur butchers or private households. Use probably indicates purchased cuts rather than home butchery in the historic record. Like the kitchen saw, the meat saw has a detachable steel blade with a high number of small teeth, but is of an overall larger size suggesting it may have been more effective for commercial butchery of larger animals such as domestic cattle. Evidence can include any trait seen in Figures 5.10, 5.11, or 5.12.

Experimentation by the author (Figure 5.12) proved differences in the kitchen and meat saw evidence is an artifact of the user's skill level and blade tension versus blade characteristics or length. For this reason, kitchen and meat sawn evidence is not differentiated in this analysis and is referred to as the kitchen/meat saw in description. Additionally, other variations of the same blade were available including the beef splitter, de-horning saw, and the pork packer's saw.

The band saw (Figure 5.13) was invented in 1808 by William Newberry and is a continuous action steel blade that revolutionized the wood cutting industry. "The band (blade) is run over two wheels, or pulleys, which…are set one above the other and spaced some distance apart" (Disston and Sons, Inc. 1926). Though, Disston and Sons (1926:49) acknowledges that band saws are used to cut meat there is no further information about this practice, and it is unknown when this tool became a meat shop fixture. Based on the

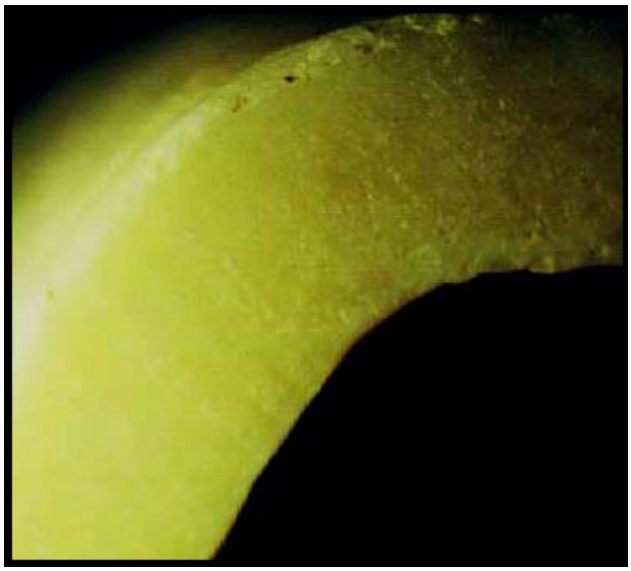



**Figure 5.13: Band Saw and Cut Evidence**

invention date, the first models of this tool may have been steam powered with later electric models available.

Evidence is very distinctive due to electric operation that eliminates many variables seen on hand operated sawing. The kerf wall is straight opposed to wavy or irregular when viewed horizontally from the side. Additionally, the striations are relatively shallow like the hack saw, but are straight, parallel, and very regular. There are striations that will be offset at times as seen on some samples. This is attributed to the operator "tipping" the meat while making the cut due to binding or increased efficiency, and often occurs at the start or end of the kerf wall. It is noted that the striations occur parallel to the flat side of a meat cut such as that of the humerus and femur since this side would be placed on the table. This is apparent on the comparative sample, but would be difficult to determine on fragmentary remains. Therefore, it is not as useful in identification unless whole cuts are present. Due to the regular pattern of band saw evidence, it is very different from other saws discussed and highly recognizable with the naked eye.

It is apparent that a lack of information on early saw types could hinder any study on the subject in the historic record. However, the author is of the opinion that advancements in saw manufacture were not extraordinary through time and that modern or later historic saws reflect blade types that were available in Europe or imported to the United States during the frontier period. These tools were a part of most settlers' general tool kit and were available for purchase prior to American production in 1840. It would follow that these tools would be similar in relative price to later pricing in catalogues suggesting that hypothesized socioeconomic differences in ownership could be projected

into the past. Any further information of early saws would obviously be of great value to this study.

Nonetheless, butchered mammal remains from each site were analyzed for saw identification based on the above outlined criteria. Any and all attempts to classify saw use was made with each specimen, but erosion and fragmentation impeded confident identification of some remains. Unidentified specimens were labeled and quantified as such and are mentioned in tool use description where pertinent. Each specimen was also analyzed twice in a blind test for purposes of accuracy. Therefore, confidence in saw identification based on the described characteristics and comparison is considered high and replicable by future zooarchaeologists.

# Chapter VI

## Materials, Methods, and Goals

### Materials

This thesis utilized sawed bone from several historic sites within Knox County including Ramsey (40KN120), Bell (40KN202), Gibbs (40KN124), Perez Dickinson (40KN128), Sixth Avenue Dump (40KN83), and Golf Range Dump (40KN143) sites. Each site represents a specific social context of inquiry for comparative purposes, and has received analytical attention from Dr. Charles Faulkner and students at the University of Tennessee, Knoxville. The location of these sites is shown in Figure 1.1 with further details of history, fieldwork, and previous research on each site discussed in separate site chapters.

### Methods

All butchered mammalian remains excavated from each site were identified using the comparative collection housed in the Laboratory of Zooarchaeology, Department of Anthropology, the University of Tennessee, Knoxville. Specimens were identified to the lowest possible taxonomic category. Due to the specific focus of this study on butchered faunal remains, only medium to large mammals with saw mark evidence are accounted for at each site and include domestic pig (*Sus scrofa*) and cattle (*Bos tarus*). No other taxa are represented by sawn evidence. However, percentage of wild species identified by previous researchers is tabulated to better compare subsistence choices of site occupants.

Faunal samples were tabulated separately according to site and time period to assess changes in the dietary profile and over time and space. For comparative purposes, all individual site data from previous and current identifications were converted to

percent NISP (Number of Identified Specimens). There are many shortcomings to using NISP (see Grayson 1978, 1981, 1984; Binford 1981; Klein and Cruz-Uribe 1984; Ringrose 1993); however, standard use by all site analysts creates limited options for comparison. It was unnecessary to calculate meat weight (Breitburg 1983) or body mass (Reitz 1992; Reitz and Honerkamp 1983; Reitz and Scary 1985) for the purposes of this study. Hence, using percent NISP to express each taxa's representation was found ideal for observing the differences between sites.

Bone characteristics noted by this analyst and summarized from previous studies include section of element present, modification, weathering or erosion and fragmentation. Chop and cut evidence is quantified using percent NISP from previous studies, but are not reinvestigated here. If chop or cut marks were visible on a sawn bone, then this evidence was noted; however, this is very rare in the analyzed assemblages. Bone weathering or erosion was noted if it impeded identification of saw used for butchery. Erosive evidence was not scaled according to Behrensmeyer's (1978) weather stages due to the limited focus of this study. Likewise, if a specimen was fragmented beyond identification this was noted. As this study focuses on sawn bone from each site, modification through sawn butchery evidence was noted and type of saw used was recorded according to the criteria discussed in Chapter V.

Metric measurement was taken of each cut width to assess standardization of home and professional butchery practices through time (see Anderson 1959? for butchery cut charts and information). Small cuts are representative of individual servings (referred to as Georgian cuts) that become increasingly popular after the late eighteenth century (Deetz 1977). Examples of these cuts include single hams and beef steaks. Medium and

larger cuts (referred to as commensal cuts) are also documented and represent a difference in consumer choice and goal. Examples of these cuts include roasts, picnic hams, and shanks. Statistics (including range, mean, and standard deviation) for the size categories are tabulated for each species, site, and time period with a conclusive compellation presented for future use in zooarchaeological studies. Together saw use and cut width should assist in interpreting home versus commercial practices in the archaeological record.

## Goals

There were several research questions stated at the forefront of this project on both a micro and macroscale. The first endeavor was to compare meat consumption in Knox County based on site location and diachronic means. A pattern for Upland South subsistence has been proposed (see Chapter IV) based on two rural historic sites included in this study (Ramsey and Gibbs). How this pattern may or may not be represented in urban areas with the growth of commercial meat marketing in Knoxville (see Chapter III and IV) was of significant interest. By comparing data from previous and present analysis of historic sites, identification of saw used, and cut width one can gain insight to the patterns of individual residences in the broader picture of increased commercialization.

Specific hypotheses are as follows: Given the established historic and zooarchaeological pattern of Upland South subsistence, one would expect that all historic sites in the region would show evidence of a diet heavily reliant on pork (see Lev-Tov 1994; Patterson 1998b; Hilliard 1969). However, this pattern is based on rural farmsteads and may not be an accurate portrayal of urban areas that had greater market access and

choice. By comparing rural versus urban faunal assemblages a very different pattern may emerge.

Also, one would expect that historic advancements in commercial transportation would cause a shift in meat consumption in both rural and urban areas. This would be evident in the faunal assemblages over time such that an increase in beef and Georgian (individually butchered) cuts demonstrates growing popularity and market involvement.

This shift would also be evidenced by the means of butchery. One might predict that a diversity of saws would be used in home butchery combined with chopping and cutting of meat that may not exhibit standard Georgian measurements. Conversely, if the portion of meat was purchased, then it would show meat, kitchen, or band saw evidence; regular measurement; and likely the Georgian ideal of individual servings. By identifying the saw used, measuring cut width, and identifying the taxa represented, one can trace the meat market involvement of each site. Though this could also be a function of consumer choice and household income, investigation should assist in establishing subsistence trends in historic Knoxville.

Through this comparative analysis of several historic sites in one small region, it should be possible to grasp a greater understanding of urban growth and development as the small farmer was pressed to find enough profit within an increasingly mass-produced, technologically advanced agricultural system. Through historical research, site history, and zooarchaeological evidence the pattern of Upland South subsistence will be reevaluated to assert changes in diet representative of shifts in culture and economy over time and space in Knox County, Tennessee.

# Chapter VII

## The Ramsey Site (40KN120)

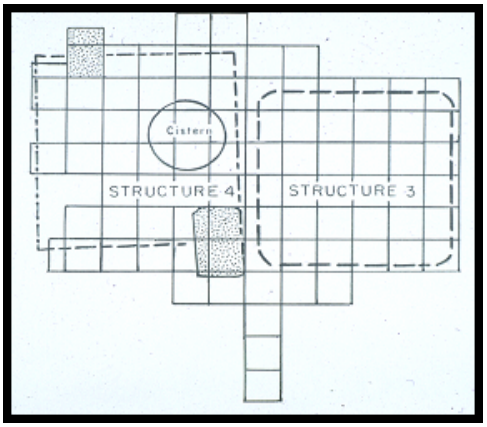
### History and Archaeological Excavations

The Ramsey Site (Figure 7.1) is considered an Upland South Plantation in east Knox County, Tennessee. The original occupants were a high status family in the late eighteenth century. Several families of lower status occupied the home after Ramsey's death in 1820 until the mid-twentieth century (Faulkner 1986). Francis Alexander Ramsey first surveyed the area including the house site called Swan Pond in 1783. The Ramsey family settled on the Swan Pond property in 1793 when they built the log house (Figure 7.1c), built the stone mansion in 1797 (Figure 7.1 a-b), and added the kitchen circa 1800 (Faulkner 2000). During these years he held several positions of local leadership including trustee of Blount College in 1794, clerk of the first state senate of Tennessee in 1796 (Ramsey 1853), and president of the Knoxville Branch of the New State Bank (Bowman and Folmsbee 1965). These positions demonstrate his importance and higher socioeconomic status in the community.

F.A. Ramsey died in 1820 leaving his property to his family including many items recognized as costly and of quality (Faulkner 1986). Most significant to this study is the inventory of livestock holdings including 36 large and small cattle, 17 sheep (and spinning equipment), and 60 large and small hogs (Knox County Administrator's Settlement 1821) showing that the property was an established farmstead that likely practiced home butchery during F.A. Ramsey's lifetime (Faulkner 1986).

a

b




c

**Figure 7.1: The Ramsey House (a), an Artist Depiction (b), and Plan view of Log Cabin (c)**

The Swan Pond property has a hazy history from 1822 through the Civil War. Little is known about the extent of occupation by the inheriting second eldest son, W.B.A. Ramsey, or the use of the property. However, it is known that the property was sold to J. G. M. Ramsey (another son) when W.B.A. moved to Nashville (Hesseltine 1954). It is not clear if J.G.M. lived on the property at any time, but it was possibly occupied by unknown tenants until the 1840s (Faulkner 1986). The property was then passed to Alex Ramsey in 1857, who lived on, and farmed the property through the Civil War. Farming was apparently practiced on a much smaller scale than during F.A. Ramsey's lifetime based in Alex Ramsey's holdings consisting of 4 milk cows, 12 other cattle, 2 sheep, and 32 swine according to the Agricultural Census of 1860. The Ramseys were Confederate sympathizers and exiled during the Civil War marking the end of family ownership of the property.

The Victorian period at Swan Pond is first marked by William C. Spurgin's (or Spurgeon) purchase and occupation for five years (Knox County Deed Records 1866). According to Faulkner (1986:50), "it is obvious that the Ramsey farm was more diversified in its total output and worth considerably more [than the Spurgin farm]" due to greatly diminished holdings recorded in the 1870 Agricultural Census. The Spurgin farm included 1 milk cow, 1 other (likely beef) cow, 12 sheep, and 29 swine in 1869 supporting Faulkner's (1986) observation of a socioeconomic shift between families at the site.

Between 1871 and 1912 the property changed hands several times, but mixed farming was practiced for the duration (Faulkner 1986). It seems that productivity of the farm did vary during this time period. This is supported by the low number of livestock

holdings reported in the 1880 Agricultural Census including only 1 milk cow, 12 sheep, and 8 swine during the Keener family residence. However, an observation of the granddaughter of John H. Watson (last owner who lived at Swan Pond) said that farm profits were the principle family income (Faulkner 1986). From the census data it appears that their livelihood may have been most dependent on crops versus livestock and the Watson may have been of a comparatively lower socioeconomic status.

Faulkner refers to the period from 1912 to the present as the Modern Period when "major changes probably happened" (1986:57) to the property. Tenants occupied the property until it was purchased by the Appalachian Marble Company in 1924. At that time Alexander Nelson resided there for the following four years (1924-28) when "the property was still a working farm" according to an interview with Nelson's daughter, Pauline Nelson Hickman (Faulkner 1986). However, an unknown succession of tenants continued to occupy the property from 1928 until about 1952 when Swan Pond was purchased by the Association of the Preservation of Tennessee Antiquities and developed into a historic house site (Faulkner 1986).

The Ramsey House site was extensively excavated under the direction of Dr. Charles Faulkner from the University of Tennessee, Knoxville, and has been the subject of graduate student study since 1985. Excavations of the yard revealed well stratified deposits offering a wealth of well dated material for potential research. Recovered artifacts support the historic documentation of this site such that the Ramsey occupation is marked by higher status artifacts and later tenant occupations are represented by lesser quality artifacts (Faulkner 1986, 2001, 2002). The faunal material from this site offers an opportunity to compare prior zooarchaeological analysis, saw use, and Georgian cut

popularity to other sampled sites and to historically documented trends (Faulkner 1986 and Patterson 1998b). The following diachronic summary of foodways and butchery are those reported by Patterson (1998b). Further remains analyzed from later field seasons reported by Jacobson (2000) and Windham (2001) are not included since they lack temporal context and are relatively small assemblages compared to Patterson's (1998b) thesis study. However, sawn remains from all samples were analyzed for this thesis for a thorough representation of any patterns.

## Subsistence

*Frontier to Early 19th Century (1793-1820):* Hogs are the most highly represented (73.14% NISP) species on the plantation during the early years of occupation. Cattle (20.9% NISP) are also identified in the recovered food remains. White-tailed deer (1.5% NISP) has little representation indicating that utilization of wild game was minimal. Ninety four percent of the identified remains were domestic mammals (pig or cattle) supporting the conclusion that the Ramsey family relied most heavily on domestic livestock production. Overall, it is apparent that occupants of the Ramsey House depended heavily on hogs likely due to their relatively fast maturation and high preservation with salting (Patterson 1998b).

*Early to Mid 19th Century (1821-1866)*: Domestic mammals continue to dominate recovered subsistence remains with hogs being the most abundantly represented (83% NISP). Cattle (11% NISP) are represented indicating that this species was also utilized for supplemental subsistence. Wild species are not well represented with an absence of white tailed deer remains recovered, but some evidence of eastern cottontail (2.2% NISP).

The high representation of hogs in the early to mid-nineteenth century archaeological sample suggests a continued pattern where hog utilization increased while cattle remains decreased. This suggests growing hog holdings due to relatively quick maturation, and a heavier reliance on swine than cattle during this time period (Patterson 1998b). This is not consistent with concepts of "beef for the wealthy" (Hilliard 1969) as discussed in Chapter IV, or the historical view that harsh living conditions caused considerable supplementation of the diet with native species (Gray 1933; Hilliard 1972; Winters 1996). Patterson (1998b) suggests that this pattern is an "indicator of the Ramsey family's ability to rely on their wealth to meet subsistence means" (1998:69).

*Late 19th to early 20th Century (1867-1912)*: Swine are the most highly utilized species (77.4% NISP) with cattle (10.3% NISP) contributing significantly less to the Ramsey house diet during the Victorian Period. Wild game is represented by an increase in eastern cottontail (6.2% NISP) and recovery of white tailed deer (.7%). This suggests a higher reliance, but not significant dependence on native species compared to previous deposits. Greater frequency of wild game with a corresponding decrease in domestic remains parallels shifting socioeconomic status at the Ramsey House.

*Early 20th Century-Present (1913-present)*: The majority of faunal remains from the Modern period date from 1912-1950 (Patterson 1998b). Remains from post 1950 to present are also grouped in this temporal category though their number is likely very low based on the house becoming a historic site. Hogs (51% NISP) and cattle (40.5% NISP) account for the majority of subsistence remains representing approximately 90% of identified species. Unlike prior temporal periods, cattle greatly increase (by 30.2% NISP) showing a much higher dependence on this species. Wild game including gray squirrel

(2.7% NISP) and eastern cottontail (5.4% NISP) were identified, but were not significantly utilized for subsistence. Of particular interest is the lack of white tailed deer remains during this time period though other native species increase, but no explanation is presented by Patterson (1998b). The greater incidence of beef corresponds to technological advancements in the meat packing industry.

## Butchery

*Frontier to Early 19th Century (1793-1820):* A small fraction (2.65% NISP) of the medium to large mammal remains was butchered with 75 percent being chopped. All hog bones showing butchery modification are chopped during this early period (Patterson 1998b). Cuts are indicative of picnic/shoulder hams including marks on one scapula head, radius, and ulna indicating that the Georgian mindset of individual servings had not yet become customary at this site. One indeterminate medium mammal fragment did show evidence of being sawn and may indicate that the Ramseys' used a saw during home butchery or that they were purchasing some cuts of meat from a local butcher (Patterson 1998b). This is also supported by one sawn beef rib with a lack of other cattle butchery evidence. As discussed in Chapter IV, Knoxville had at least one butcher as early as 1794 that likely possessed a saw from a European saw company (see Chapter V) and provided meat cuts to local consumers.

*Early to Mid 19th Century (1821-1866):* Patterson (1998b) reports that the butchery trend of chopping in the previous period is completely replaced by sawing and cutting of hog bone in this temporal period. Five pig fragments show evidence of butchery (1.4% NISP); one vertebra is cut for carcass division and all other modified elements are sawed including a femur, metapodial, and phalange. Due to the elements

represented it is apparent that there was continued home butchery and household consumption of hogs (Patterson 1998b).

*Late 19th to Early 20th Century (1867-1912):* Sawn and chopped hog elements represent the majority of butchery evidence (1.9% NISP) during tenant occupation at Ramsey house. Pig cranial and mandibular fragments, a scapula, and humerus were sawn for subsistence utilization. Yet, two limb shafts show evidence of being chopped (Patterson 1998b). Chopped and sawn remains indicate home butchery by the tenants was different from the previous Ramsey faunal remains that show only sawn evidence once. Additionally, two sawn beef sirloin cuts were identified from this period.

*Early 20th Century-Present (1913-present):* All butchered remains from this modern era are sawn without any evidence of chopping. The majority of remains from 1913 to 1950 are represented by sawn limb fragments suggesting purchase of retail cuts (Patterson 1998b). Early in the period butchered pig remains are from long bones of high to medium utility. Later, all sawn remains represented are of hog cranium and medium utility indicating some shift in dietary practices that parallels historic documentation. There is a significantly higher percent of sawn cattle remains recovered corresponding to market advancements and lower prices.

Tool Use and Cut Width

*Frontier (1793-1820)*: During the initial settlement of the Ramsey House property there were a variety of saws used for butchery including the back, hack, and kitchen/meat saws. Overall evidence is minimal with most remains being chopped As seen in Figure 7.2, the majority of sawn bone (63.7%; n=7) shows evidence of the kitchen/meat saw. Sawn pig remains are the most frequently represented for this period (54.6%) and saw

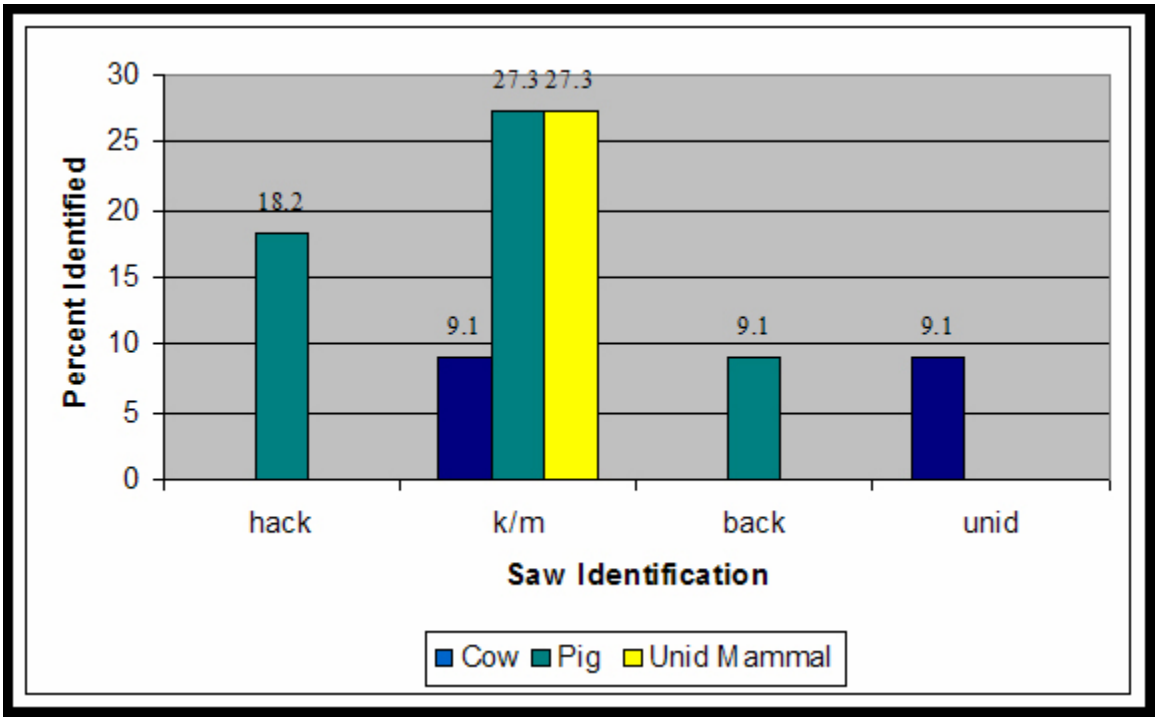



**Figure 7.2: Saw Evidence by Species at the Ramsey Site (1793-1820)**

category (27.3%). Hack (18.2%) and back (9.1%) saw evidence are also represented by pig with no cow elements identified.

The relatively high occurrence of pig remains (n=7) calls for further investigation of cut widths. In Figure 7.3, it is apparent that the data is not normally distributed as widths fall within two class categories. The small category (57.1%) has the greatest number of specimens showing the popularity of longbones for individual ham cuts. A larger sized group indicates that commensal cuts of pork were also served.

*Antebellum and Civil War (1821-1866)*: There is an overall increase of sawn bone in this diachronic sample represented by the hack, kitchen/meat, and the band saw (Figure 7.4). Kitchen/meat saw evidence has the highest occurrence (55.6%), and is only

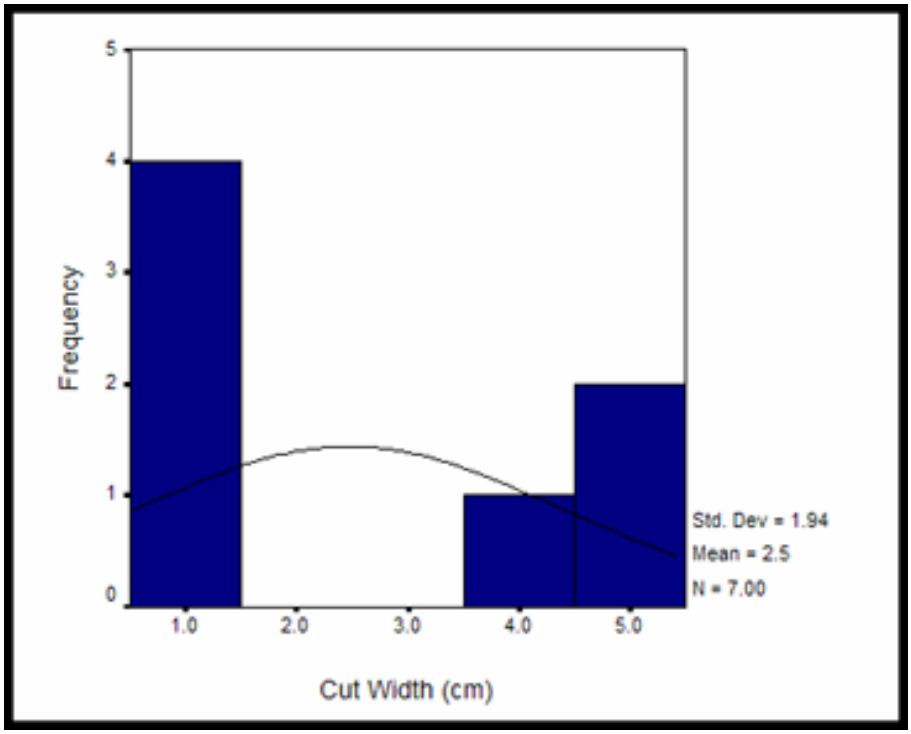



**Figure 7.3: Cut Widths for Pig at the Ramsey Site (1793-1820)**

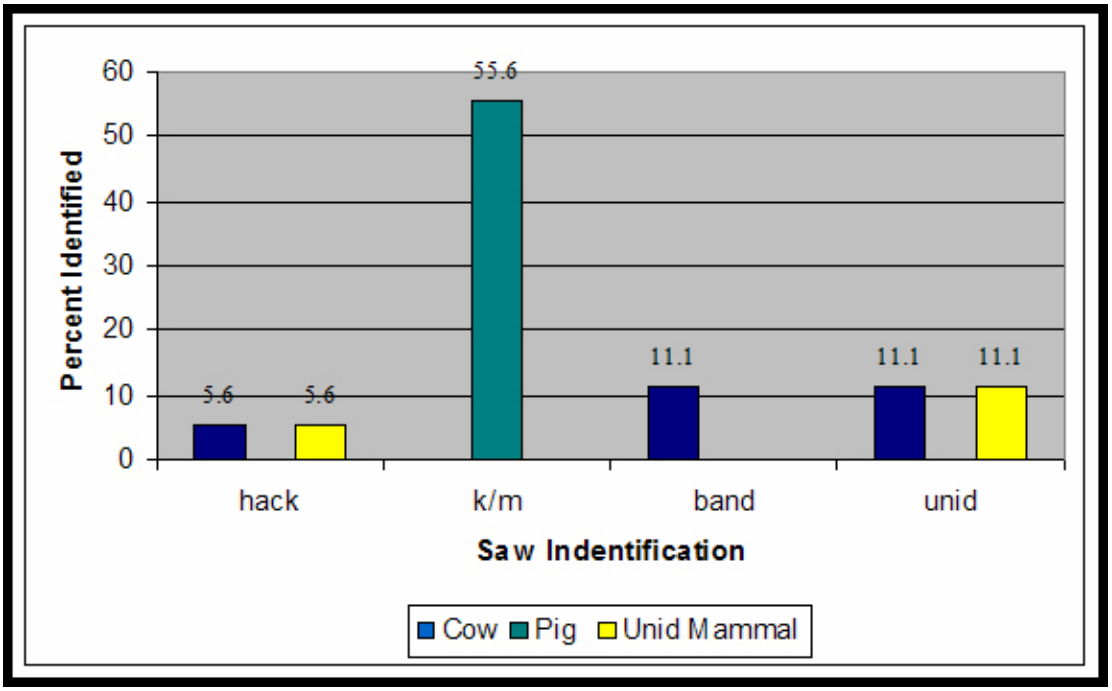



**Figure 7.4: Saw Evidence by Species at the Ramsey Site (1821-1866)**

represented on hog remains. The hack (11.2%) and the band (11.1%) saws were also utilized, but only occur on beef elements.

Cut widths for pig remains are in three distinct size categories (Figure 7.5). The smallest size is representative of Georgian cuts and the most abundant. A medium size is also represented and is similar to the previous period. These two groupings are cuts made from the femur and more often the humerus of the hog. However, the larger sized cuts include one pork rib segment that is larger than all other specimens.

*Postbellum-Early 20$^{th}$ Century (1867-1914)*: There is a drastic change in the saw evidence after the Civil War at this site (Figure 7.6). The band saw shows a much higher frequency (45.2%) of use with the kitchen/meat saw evidence being greatly reduced (31%). There is no evidence for use of the hack saw in this sample. Pork remains the most abundant species represented; however, the majority was butchered with a band saw opposed to earlier periods. Beef elements are more abundant than previous periods and are sawn with a band saw, but more frequently with the kitchen/meat saw.

Cut widths for pig and cow are illustrated in Figures 7.7 and 7.8. An increase in the number of identified sawn pig cuts creates a more evenly distributed curve of widths. However, the small, medium, and large size categories remain consistent with Georgian cuts representing the majority of remains. The outlying large cut in Figure 7.7 is a rib segment (6.7cm) similar to the previous evidence. The percentage of cow cuts increases such that there are enough measurable segments to observe frequency. Figure 7.8 illustrates that cow cuts do not separate into distinct size categories as pig cuts do. This could be an artifact of small sample size; however, the more frequent large cuts are that of a rib and metatarsus. Due to the number of unidentified cuts, frequency of cut widths is

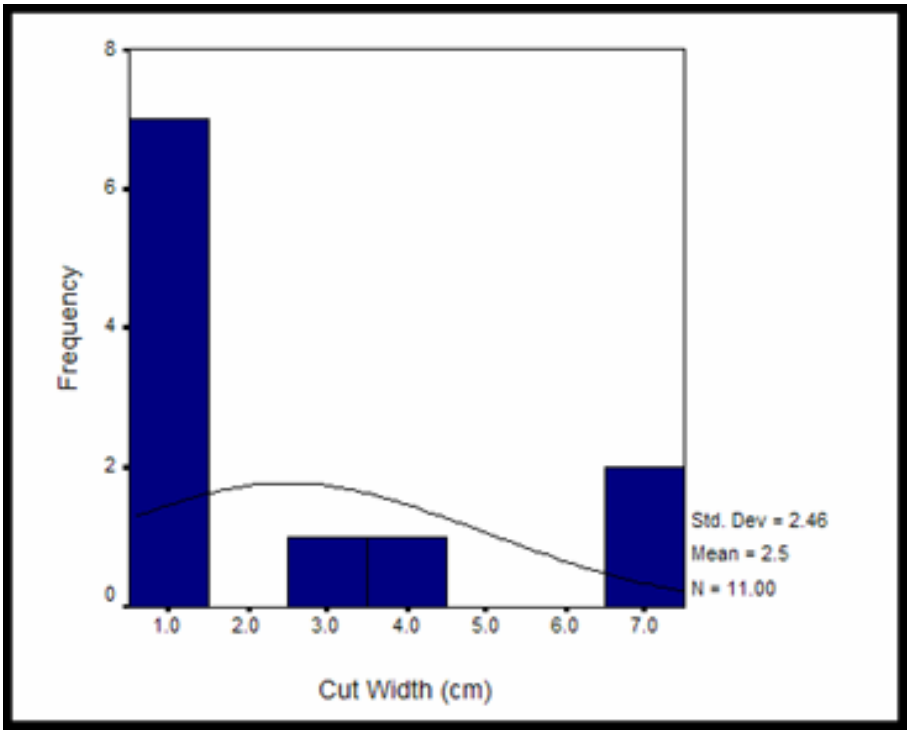



**Figure 7.5: Cut Widths for Pig at the Ramsey Site (1821-1866)**

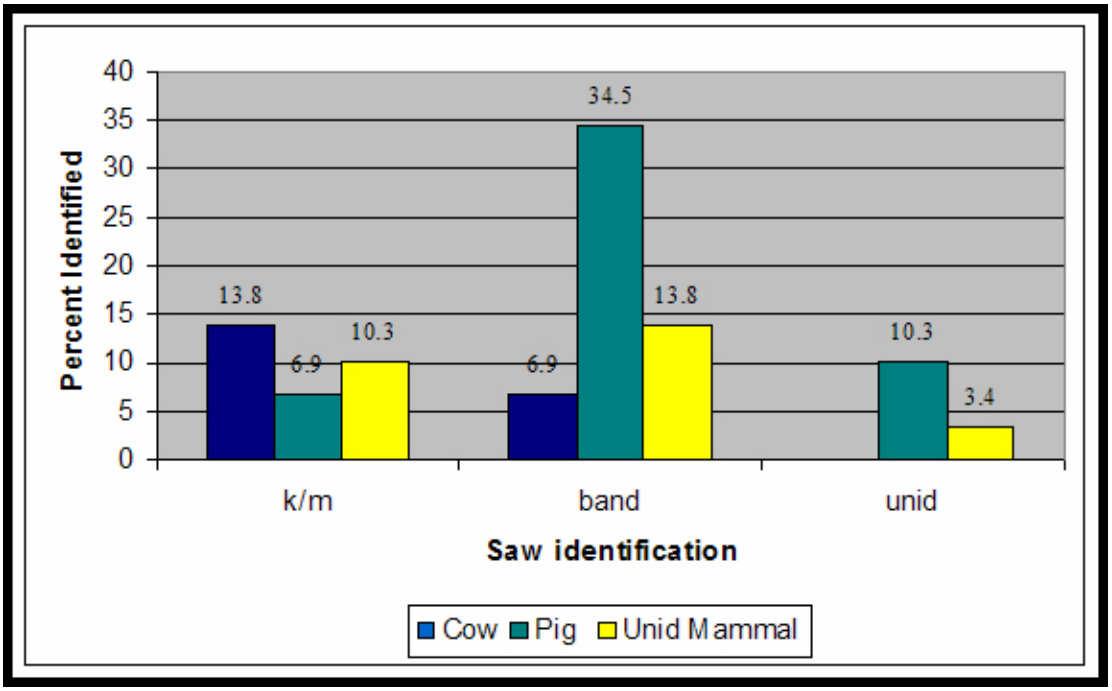



**Figure 7.6: Saw Evidence by Species at the Ramsey Site (1867-1914)**

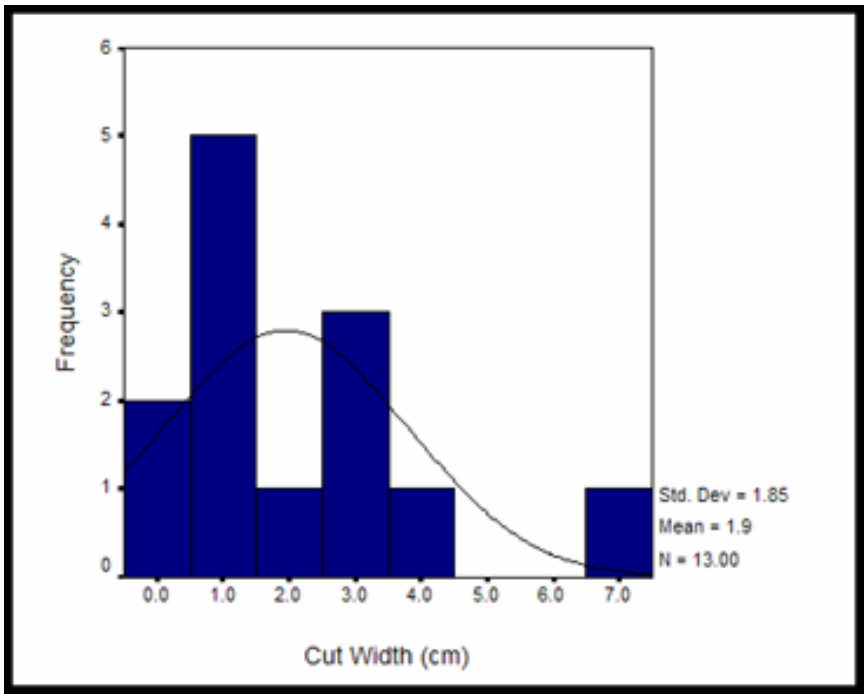



**Figure 7.7: Cut Widths for Pig at the Ramsey Site (1867-1914)**

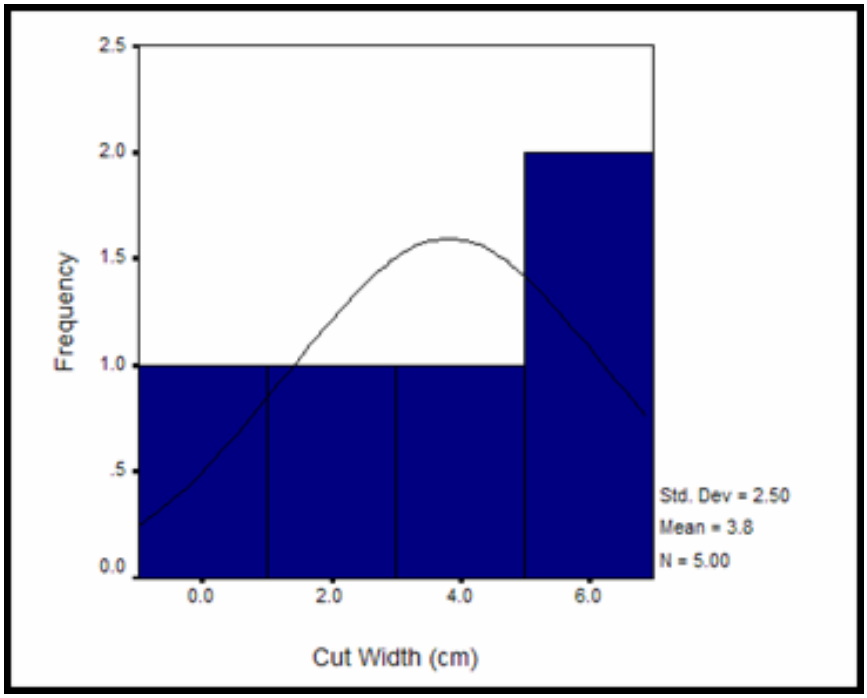



**Figure 7.8: Cut Widths for Cow at the Ramsey Site (1867-1914)**

also illustrated for these remains in Figure 7.9. The characteristic three size categories are demonstrated within this group with a higher frequency of small and medium sized cuts present.

*Early-Mid 20th century (1915-1952):* Similar to the Postbellum period, only the band and kitchen/meat saws are represented in this sample (Figure 7.10). Band sawn remains are the most highly represented on both pig and cow elements with an increase in beef cuts. Kitchen/meat saw evidence decreases, but is still used for both cow and pig butchering. There is a significant decrease in the percentage of beef remains butchered with the kitchen/meat saw from the previous period that parallels the increases of band sawn remains. Unfortunately, there is a large percentage of unidentified mammal cuts due to fragmentation.

The frequencies of cut width measurements show the same pattern of small, medium, and large size categories. In Figure 7.11, the ham cuts are more normally distributed, but show a higher frequency of small and medium sized portions. The small category is less distinctive due to specimens measuring slightly above those of previous periods. The large size grouping creates an outlier that is represented by one rib segment similar to before. Beef cut widths (Figure 7.12) continue to form three size groupings. Small, individual servings represent the highest occurring cut while one rib segment represents the medium size category. Larger cuts are also evidenced and show the continued utilization of commensal portions.

## Site Summary

The data presented in this chapter demonstrate changes in subsistence strategies over time and socioeconomic classes. The Ramsey occupation from the frontier to mid-

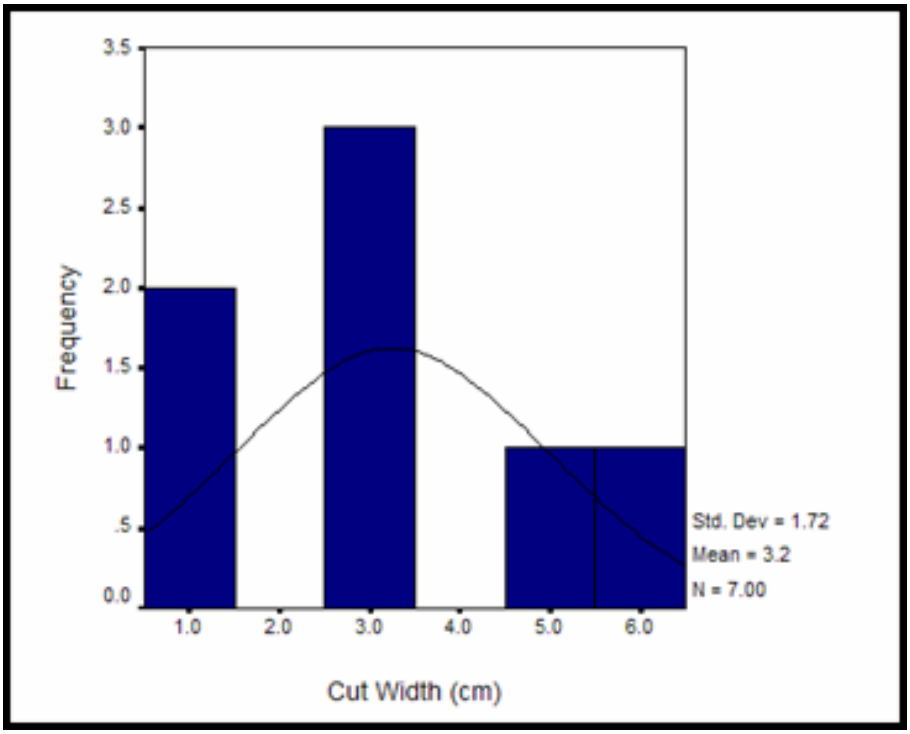



**Figure 7.9: Cut Widths for Unid Mammal at the Ramsey Site (1867-1914)**

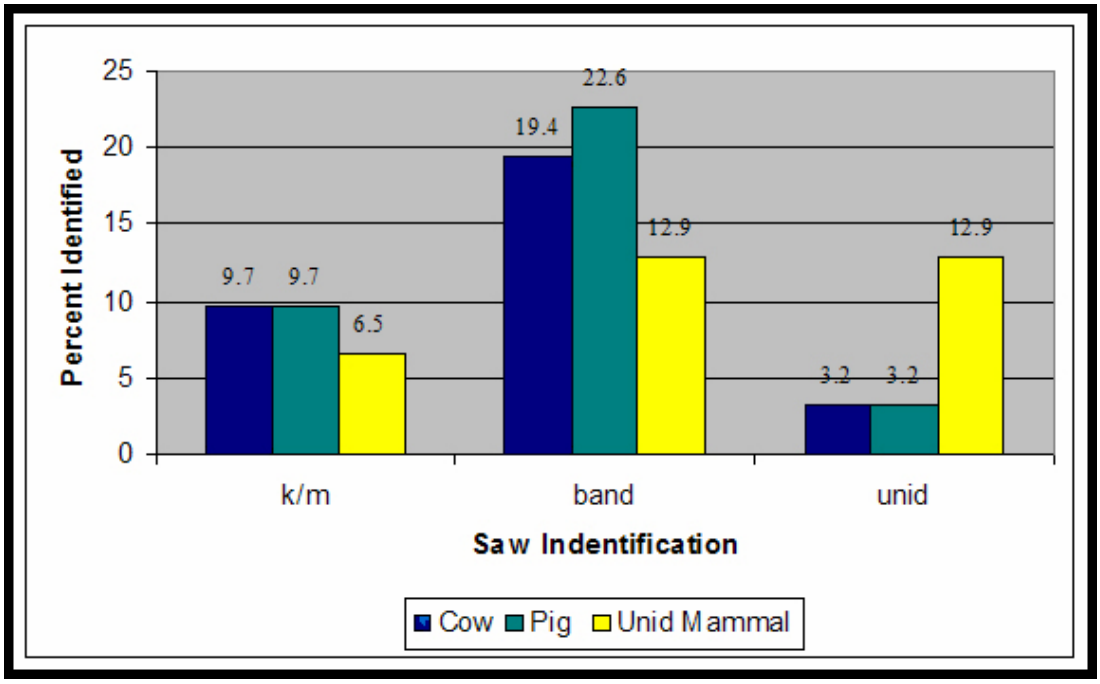



**Figure 7.10: Saw Evidence by Species at the Ramsey Site (1915-1952)**

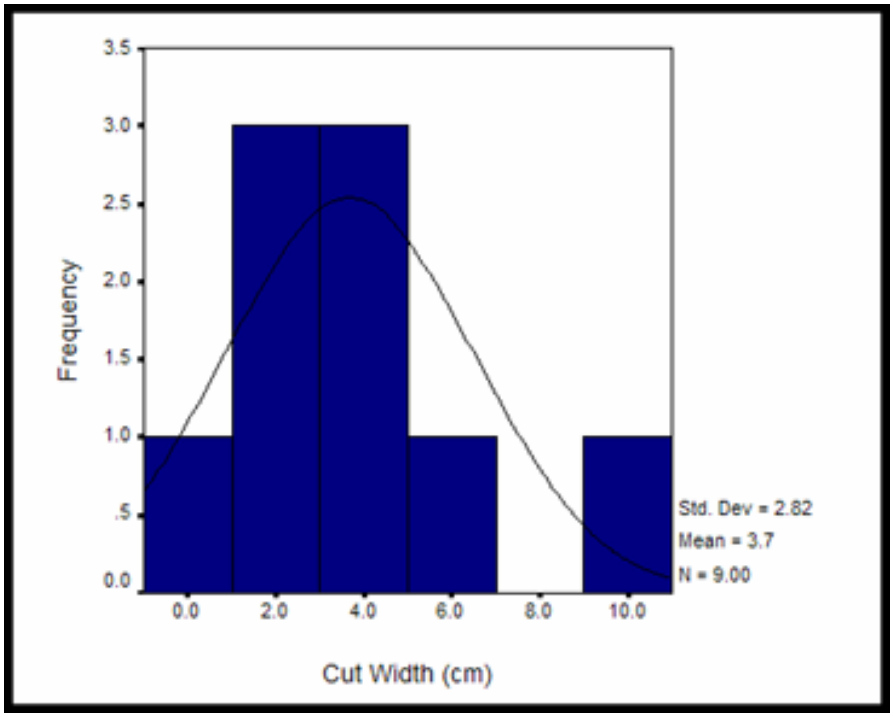



**Figure 7.11: Cut Widths for Pig at the Ramsey Site (1915-1952)**

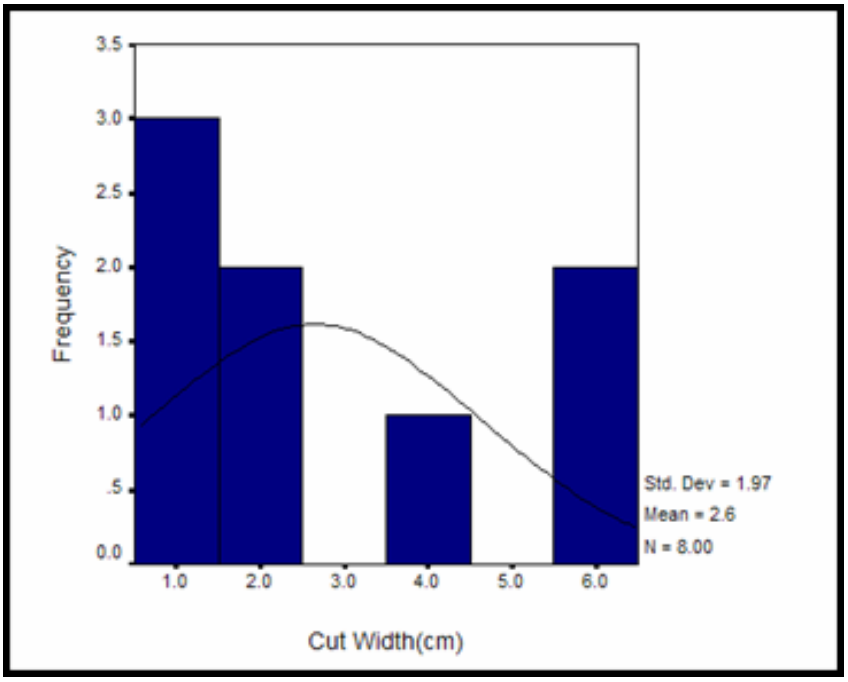



**Figure 7.12: Cut Widths for Cow at the Ramsey Site (1915-1952)**

nineteenth century had an increasingly large holding of hogs and some cattle. There is a greater amount of sawn meat cuts with time. The back, hack, and kitchen/meat saws are represented by three sized categories for pig (Table 7.1). Therefore, the Georgian trend is evidenced early at this site.

The lower socioeconomic tenants living at Swan Pond from the late nineteenth through the mid-twentieth century show a different strategy for meat procurement as the Upland South trend shifts. Though swine continue to dominate the diet, there is an increase in cattle and wild game remains. Band sawn remains dominate the assemblage with kitchen/meat saw evidence also represented. Three cut width categories are present (Table 7.2). Results suggest less home butchery and greater market involvement by the tenants.

By the early to mid-twentieth century the occupants at Swan Pond butchered less swine on-site and practiced a primarily purchasing strategy. Beef remains increase sharply with a subsequent decrease in pork. All butchered elements are sawn. The band saw is the most highly evidenced with some kitchen/meat sawn cuts represented. Cut widths (Table 7.3 and 7.4) show three groupings with slightly larger Georgian cuts of pork and beef most frequent in this sample.

**Table 7.1: Pig Cut Width Statistics for Ramsey (1793-1866)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | 11 | 0.7 | 1.2 | 0.977 | 0.16 |
| Medium | 5 | 2.55 | 5.3 | 3.99 | 1.024 |
| Large | 2 | 6.9 | 7.25 | 7.08 | 0.247 |

**Table 7.2: Pig Cut Width Statistics for Ramsey (1867-1899)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | 11 | 0.3 | 1.5 | 0.788 | 0.206 |
| Medium | 4 | 2.5 | 4.15 | 3.06 | 0.739 |
| Large | 1 | 6.7 | - | - | - |

**Table 7.3: Pig Cut Width Statistics for Ramsey (1900-present)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | 4 | 0.8 | 2 | 1.45 | 0.592 |
| Medium | 4 | 3.1 | 5.1 | 4.35 | 0.881 |
| Large | 1 | 9.9 | - | - | - |

**Table 7.4: Cow Cut Width Statistics for Ramsey (1900-present)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | 5 | 0.75 | 1.85 | 1.31 | 0.426 |
| Medium | 3 | 3.5 | 5.6 | 4.867 | 1.18 |
| Large | - | - | - | - | - |

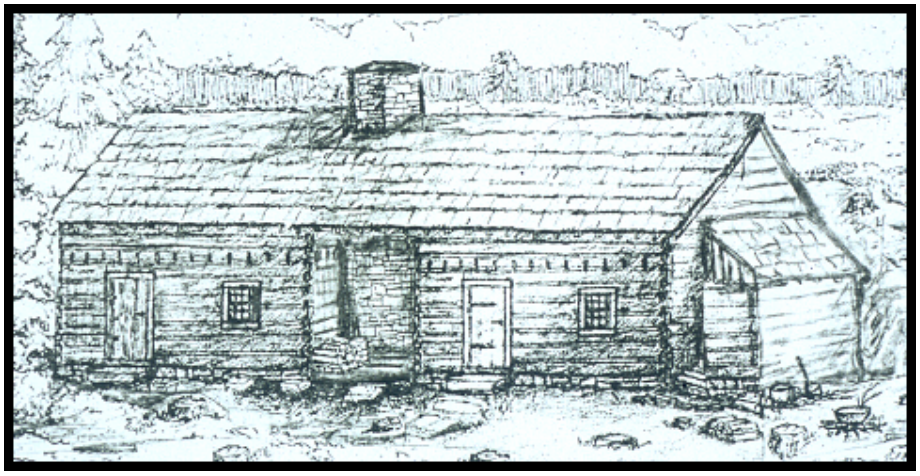
## Chapter VIII

## The Bell Site (40KN202)

### History and Archaeological Excavations

The Bell Site represents a semirural farmstead located in the periphery of Knoxville's urban center on Kingston Pike (see Figure 1.1). This site is of a middle class family of yeoman farmers, and was occupied during the frontier and the beginning of the antebellum periods (1793-1834) (Faulkner 1997). Therefore, it is a good representation of "frontier life of middle class citizens of East Tennessee" (Stinson 1999:8).

The original house structure was a log two-pen saddlebag house with central limestone chimney (artist depiction in Figure 8.1) and was constructed by William Bell during the 1790s (Stinson 1999; Faulkner 1997) on a 500-acre tract of land (Morton Rose 1997). Upon William Bell's death in 1813 he owned four slaves suggesting that the Bell family had some wealth. The property was then sold to John Clark between 1813 and 1817 (Stinson 1999; KCA 1817:175). "Judging by his will, John Clark was a very wealthy man, although his occupation is unknown. In his will he left a total of 19,000 acres, 2 houses and lots in Augusta, two improved lots in Augusta, four tracts of land in Knox Co., 140 shares of stock in Georgia, the mortgage from a property in West Tennessee, and three slaves to his various family members" (Stinson 1999:7; KCA 1823:432-36). However, it is doubtful that he ever resided in Knox County and may have only frequented the area (Stinson 1999:8). John Clark died in 1823, and two nephews took ownership until 1834 when the structure was razed (Stinson 1999). The lot was occupied through 1915 (Cagel 1997), but



a


b

**Figure 8.1: The Bell Site Artist Depiction (a) and Plan view of excavated east pen and central fireplace (b)**

the residents lived in a different structure. No archaeological remains are attributed to this time period giving confidence to the tight date range and findings of the Bell family for analysis in this thesis project.

There were salvage excavations in 1997 and more extensive excavations during a University of Tennessee field school in 1998 (see Figure 8.1 for plan view) of the original house site under the direction of Charles Faulkner. Excavation of the eastern pen, limestone chimney, and a large pit cellar was by trowel and dry-screened through ¼-inch mesh. Ample artifacts from the 1997 excavations provide information on the Bells' occupation and are discussed by Stinson (1999). Artifacts from the 1998 season lack the same analytical attention, however, faunal remains from both seasons were analyzed for class projects by zooarchaeological graduate students Berube (1999) and Patterson (1998a). For this reason, it is felt that investigation of species representation, butchery patterns, saw use, and cut width at the Bell Site offers an opportunity to compare foodways of middle class yeomen farmers in Knox County during the period of initial urban growth.

## Subsistence

*Late 18$^{th}$-Early 19$^{th}$ Century (1792-1834):* The short occupation of the Bell Site and undifferentiated temporal periods in the faunal analysis inhibits observation and understanding of any changing subsistence patterns at the Bell house over the 42 year residence. Domestic pig and cattle make up the majority of identifiable remains. By calculating the mean percent NISP of each species of both reports it is possible to observe some general characteristics of this assemblage.

Hogs are the primary utilized species with wide element distribution (65.9% NISP). Cattle remains are much less frequent with high and low utility elements represented (13.5% NISP). This indicates that the occupants did not rely heavily on beef for subsistence. Wild game (totaling 4.6% NISP) contributed significantly less to the table although higher than at other sampled sites. Possibly utilized species include eastern cottontail (2.7% NISP) and squirrel (gray or indeterminate) (1.9% NISP). This suggests the Bell family lacked the wealth to produce or purchase enough meat for the year and supports the middle class designation of the family.

## Butchery

*Late 18th-Early 19th Century (1792-1834):* Domestic pig remains show wide element distribution including those of low utility. This suggests butchery on the premises (Patterson 1998a; Berube 1999). Modification of domestic pig includes chopped (7.7% of total butchered), cut, and sawn (7.7% of total butchered) remains. A chopped mandible with cut and sawn longbones and ribs suggest multi-stage butchery using multiple tools.

Domestic cattle remains analyzed by Berube (1999) and Patterson (1998a) show significantly differing butchering frequencies. However, both samples have chop, cut, and saw modification represented on both high and low utility elements. This indicates on-site butchery of some cattle at the Bell Site.

## Tool Use and Cut Width

*Frontier (1792-1834):* The only evidence identified was the kitchen/meat saw on the small sawn sample (Figure 8.2). Pig elements are most frequently represented by

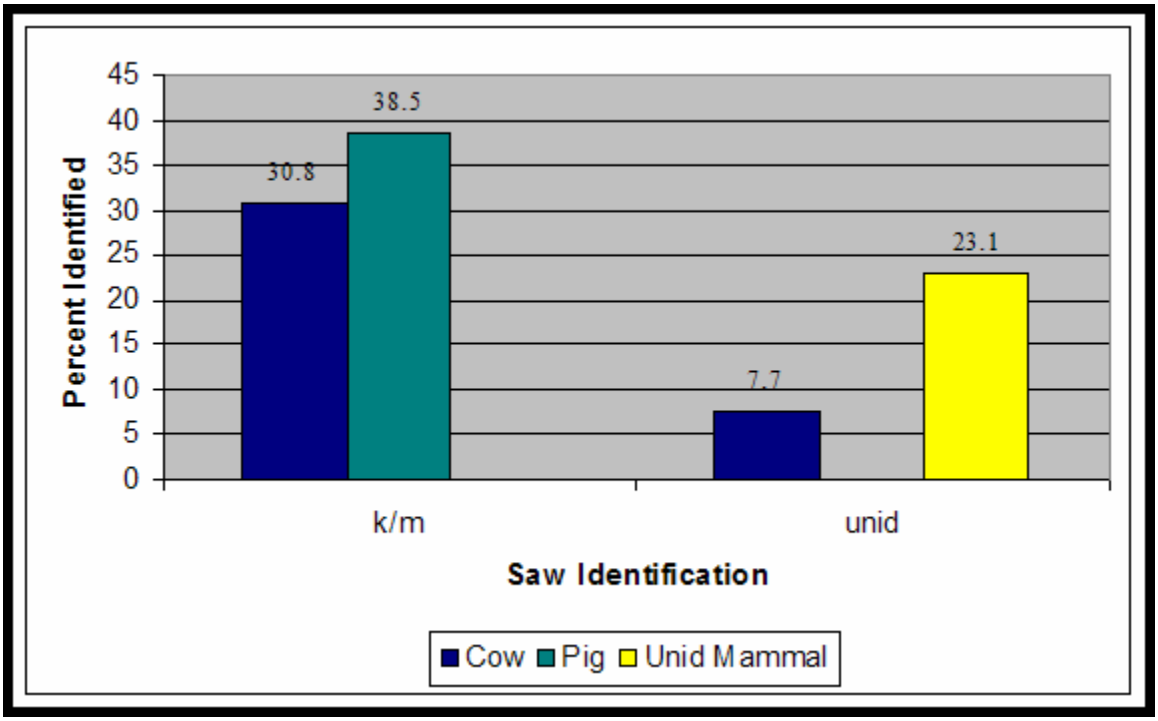



**Figure 8.2: Saw Evidence by Species at the Bell Site**

longbones. Sawn cow remains also have a high frequency compared to other frontier sites represented by ribs and femurs.

Cut widths for both pig and cow are shown in Figures 8.3 and 8.4. From these charts it is apparent that measurements are not normally distributed and form distinct size categories. Pig cut widths for this sample fall into medium and large groupings with no evidence for small individual ham servings. Medium sized cuts are frequently observed on longbones. The larger specimens are a scapula and a femur with no rib portions evidenced. Beef cuts also show distinct medium and large groupings. The more frequent medium size category is represented by rib and longbone portions while the outlying large cut is a large rib segment. This sawn element distribution is consistent with other sites' evidence.

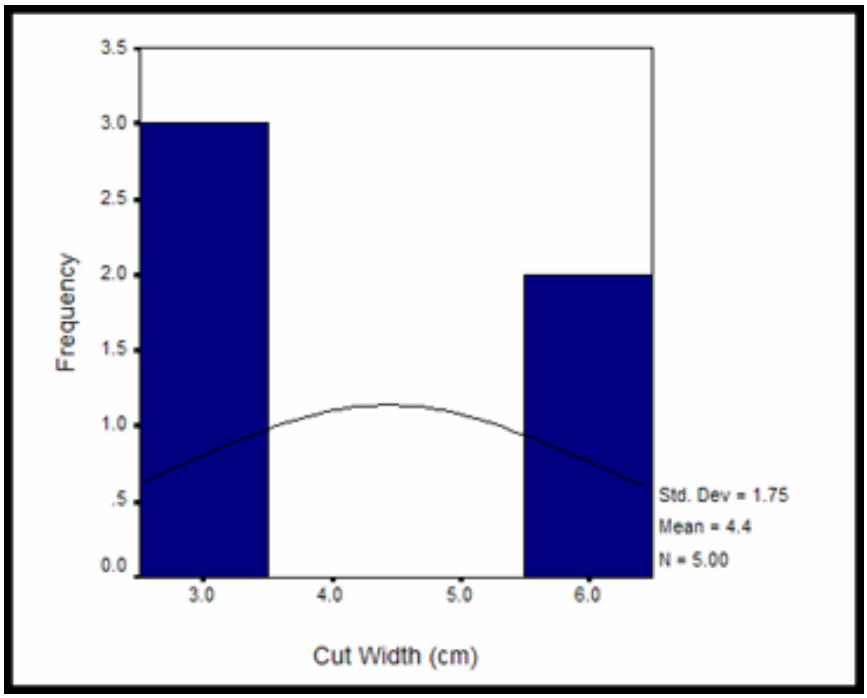



**Figure 8.3: Cut Widths for Pig at the Bell Site (1792-1834)**

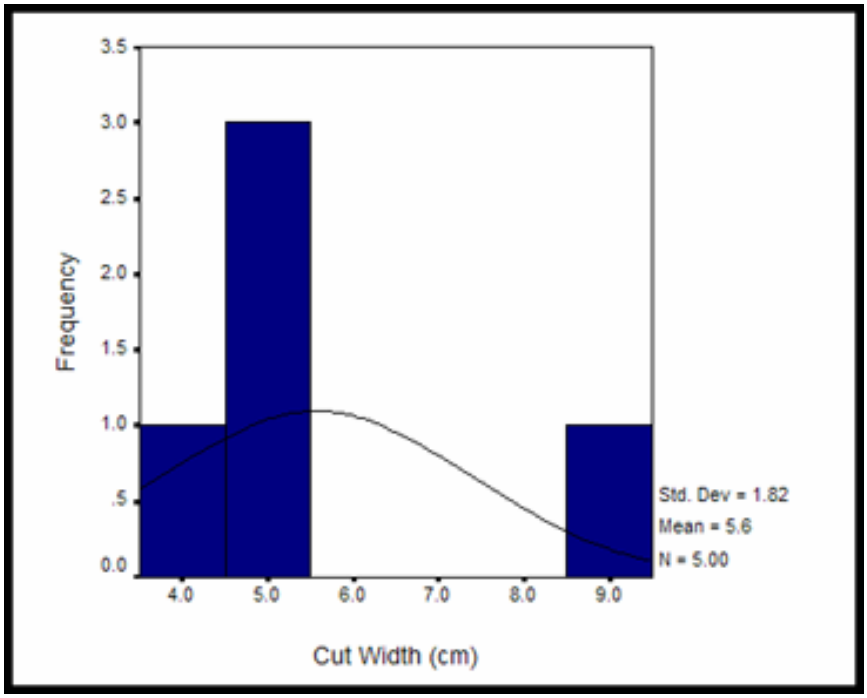



**Figure 8.4: Cut Widths for Cow at the Bell Site (1792-1834)**

## Site Summary

The Bells were yeomen farmers located just outside Knoxville's urban center during the frontier and early antebellum periods. Pig remains dominate the faunal assemblage with cattle having a much smaller representation. The kitchen/meat saw is the only identifiable saw utilized. Cut widths for both pig (Table 8.1) and cow (Table 8.2) are of medium to large sized cuts with little evidence for individual servings. Results suggest that the Bell Family butchered both pig and cow on-site using a kitchen/meat saw during this process.

**Table 8.1: Pig Cut Width Statistics for Bell (1792-1834)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | - | - | - | - | - |
| Medium | 3 | 3 | 3.3 | 3.167 | 0.153 |
| Large | 2 | 6.3 | 6.4 | 6.35 | 0.071 |

**Table 8.2: Cow Cut Width Statistics for Bell (1792-1834)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | - | - | - | - | - |
| Medium | 4 | 3.7 | 5.35 | 4.813 | 0.755 |
| Large | 1 | 8.6 | - | - | - |

# Chapter IX

## The Gibbs Site (40KN124)

### History and Archaeological Evidence

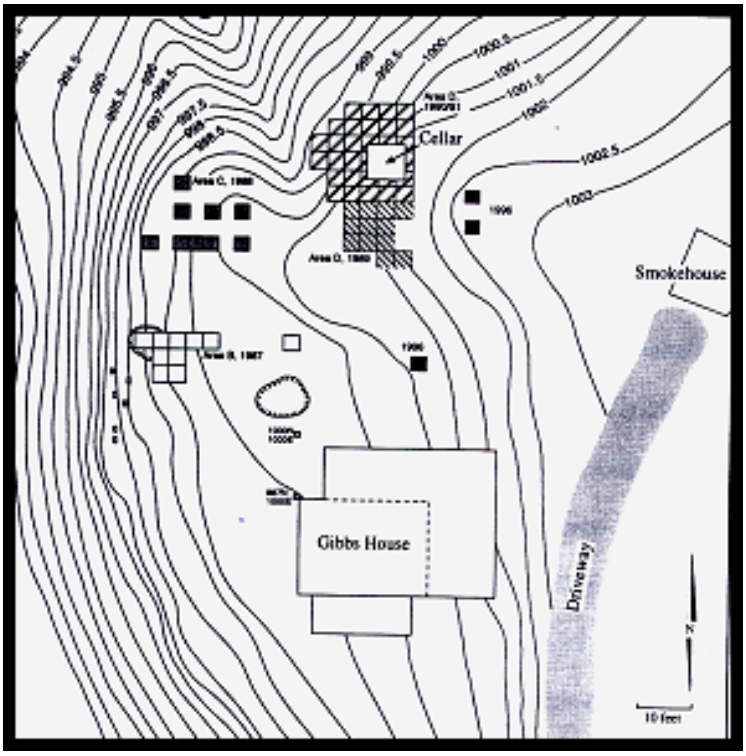
The Gibbs site represents a German yeomen farm having long term occupation (1792-1971) (Groover 1998, 2003). Location of this site (Figure 1.1) is furthest from Knoxville's urban center. Comparison offers an example of a lower status family outside the urban sphere.

The Gibbs House, presently a public historic site (Figure 9.1), was a log cabin on a 450-acre tract (now greatly reduced) of land settled by Nicholas Gibbs in 1792. Over the following 219 years the property remained in the Gibbs family cycling through five generations under partible inheritance. The property was occupied by different tenant families from 1913 to 1986 after which the Nicholas Gibbs Historical Society obtained ownership and maintains the property today.

The original structure is a one-and-a-half story log house (Figure 9.1) that is still located on a knoll above Beaver Creek in north Knox County (Groover 1998:112). Groover (1998) thoroughly discusses the origins of Nicholas Gibbs and German farming traditions that were practiced at this site. Traditions are concisely described by Klees (1958) such that the first German American families were "dirt farmers" and used family members for all farm labor.

Nicholas Gibbs was a public servant in Knoxville as evidenced by his appointment to Justice of the Peace and executor of several wills. He recognized the opportunities and inexpensive land available in settling the frontier of East Tennessee, and began amassing acreage upon settlement (Groover 1998). This suggests that he

a




b

**Figure 9.1: The Gibbs House (a) and Plan view of excavated area (b)**

possessed some wealth, but upon comparison to other site histories it is apparent that his wealth was not significant and that the primary family income came from farming the land. His motives for purchasing this property lie in his traditional German value system of partible inheritance. Nicholas Gibbs was 59 when he and his family moved to Knox County (then known as Hawkins County), and his sons were approaching their mid-20s when land was traditionally given for the initiation of each son's personal farm, family, and life. Each holder of the original house farmed the surrounding land and had fluctuating livestock holdings over the following generations.

In 1913, great-grandson John Gibbs chose to find another means of employment and rented the property and home separately. It was sold to his daughter Ethel Gibbs Brown in 1971 (Faulkner 1988:3). Then the property was purchased by the Nicholas Gibbs Historical Society for preservation (Neal 1986). Therefore, the extended period and plentiful sample of faunal material from the Gibbs site provides an excellent comparison to other Knox County sites in this study.

Archaeological fieldwork at the Gibbs Site was directed by Dr. Charles Faulkner of the University of Tennessee from 1987 to 1991. Extensive excavations (plan view shown in Figure 9.1) of the rear yard revealed the functions of former outbuildings on the property. These include a smokehouse that was used for salting and curing of meat (Faulkner 1991:3-4), a dumping area used throughout the Gibbs occupation (Faulkner 1989:7), a shallow depression containing the earliest faunal material, and other loci that provided less information on subsistence at the site. All sediments were screened through ¼ inch mesh with floatation of some samples. Faunal analysis was performed by a

zooarchaeological graduate student, Justin Lev-Tov (1994), as a thesis project and provides a wealth of information on site activities.

## Subsistence

*Late 18th-Early 19th Century (1792-1820):* Lev-Tov (1994) reports that the largest sample of faunal remains was recovered from Area A representing the frontier period context at the Gibbs House. Recovered mammal remains are dominated by domestic pig (50% NISP) and cattle (12% NISP). There is also a high percent of native species (12% NISP) compared to other archaeological sites in this study. The variety of mammalian wild game recovered includes white-tailed deer (4% NISP), gray and fox squirrel (4% NISP), and eastern cottontail (4% NISP) (Lev-Tov, 1994). The relatively high percent and diversity of native species shows that the Gibbs family utilized natural resources to supplement their diet to the same degree as cattle. This may be an artifact of their rural location and lack of wealth. Yet, they relied most heavily on the domestic pig consistent with the Upland South trend.

*Early-Mid 19th Century (circa 1821-1850):* Domestic pig (70% NISP) dominates this period with cattle remains being much less frequent (11% NISP). The relatively high number of native mammalian species represented in the frontier period sample is greatly decreased in this later assemblage (2% NISP), and, there was a shift to a heavier reliance on pork in this period.

*Mid-Late 19th Century (circa 1851-1910):* Fragmentation of the faunal material limited identifiable specimens for the sample. However, Lev-Tov (1994) identified a high dependence on domestic animals represented by hogs (57% NISP) and cattle (14% NISP). Native species were also identified including white-tailed deer (7% NISP),

squirrel (2% NISP), eastern cottontail (3% NISP), raccoon (2% NISP), and opossum (2% NISP). Overall, this temporal period shows evidence of significant increases in the use of native species (total 16% NISP) that is higher than the frontier period and any other site in this study. This coincides with a decrease in pig remains. Lev-Tov (1994) does not discuss the significance of this oddity, and the author feels the variables are too numerous to conclude any direct causation.

Butchery

*Late 18th-Early 19th Century (1792-1820):* Home butchery (5.2% NISP) was practiced during the frontier period. Most were chopped (98.8% NISP) hog remains of wide element distribution (Lev-Tov 1994). Due to the low frequency of butchered cattle remains, patterns of butchery were not reported by Lev-Tov (1994). However, all remains were chopped.

*Early –Mid 19th Century (circa 1810-1850):* Butchered remains (3% NISP) from this period are highly fragmented due to chopping. Yet, evidence indicates that hog and cattle were processed on-site having low or no utility elements represented (Lev-Tov 1994). This is consistent with results from the frontier period.

*Mid-Late 19th Century (1810-1910):* Lev-Tov (1994) reports that the frequency of butchered remains (2.3% NISP) decreased during this period due to small sample size and high degree of fragmentation. Hog and cattle were chopped without any saw evidence. Both high and low utility elements are represented indicative of home processing.

*Early-Mid 20th Century (1913-1971):* Lev-Tov (1994) did not include these remains in his thesis sample. During this period five domestic mammal elements show evidence of sawing. These suggest a shift in the subsistence pattern at the Gibbs site.

Tool Use and Cut Width

*Late 18th-Mid 19th Century (1792-1850):* The Gibbs' strong German heritage as "dirt farmers" (Klees 1958) is strongly supported by the early butchery evidence of only the axe or cleaver (Lev-Tov 1994). There are no sawn remains indicating that the family used this tool for butchery purposes. Surplus meat was sold for profit (Lev-Tov 1994; Groover 1998); however, there is no evidence that Georgian sawn cuts were prepared. The lack of sawn meat cuts is unique in comparison to the other sites in this study, and may be attributed to ethnic butchery patterns.

*Early-Mid 20th Century (1913-1971):* There is a drastic change at the Gibbs site during this time period marked by the presence of some sawn cuts opposed to chopped portions (Figure 9.2). Band saw evidence (80%) dominates the small sample. This includes longbones and ribs of both pork and beef equally. The one kitchen/meat saw specimen is an astragalus, which is unique to this site. There are too few specimens to warrant a detailed cut width discussion; however, all cuts are within the medium sized range

Site Summary

The Gibbs site, a German yeoman farm, is unique compared to other studied for this thesis. Though domestic pig represents the mainstay of the family diet, cow and native mammals are utilized more than at any other early sites. This could be due to the rural location of the site.

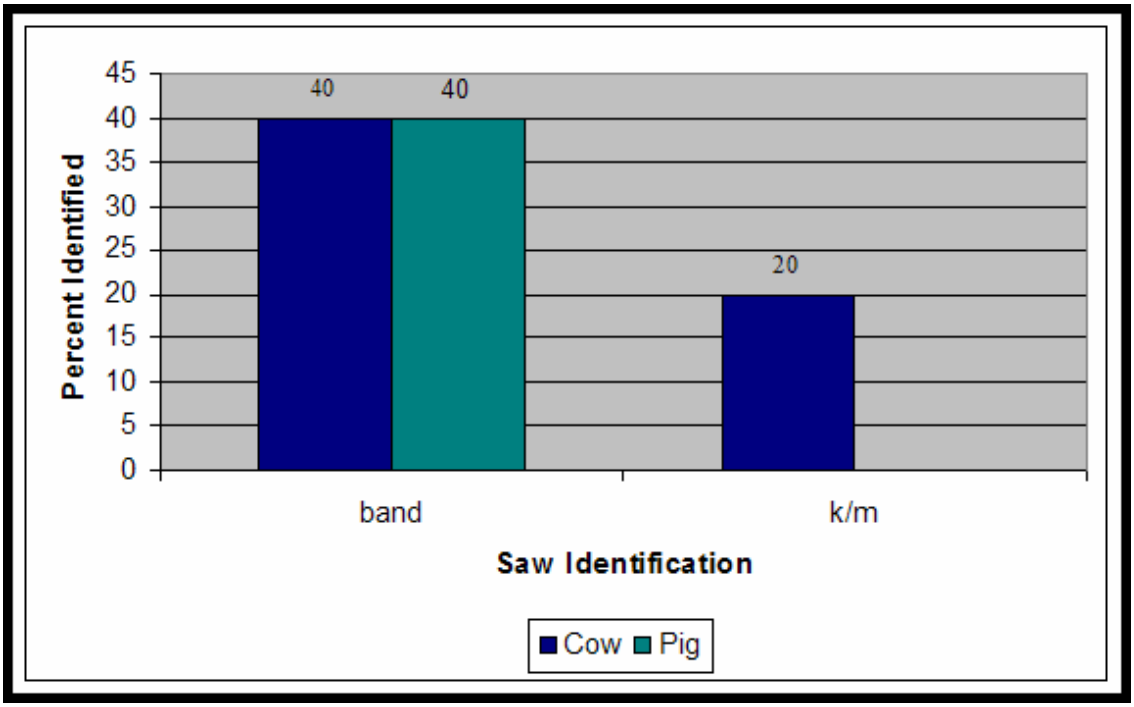



**Figure 9.2: Saw Evidence by Species at the Gibbs Site (1913-1971)**

Butchery evidence is exclusively chopped until the twentieth century when the Gibbs family left the property. A small number of band and kitchen/meat sawn cuts are present in this late assemblage. Each is within a medium size range (Table 9.1 and 9.2). Data suggest that market purchased meat was minimal throughout residence at the Gibbs house.

**Table 9.1: Pig Cut Width Statistics for Gibbs (1913-1971)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | - | - | - | - | - |
| Medium | 2 | 3.5 | 4.4 | 3.95 | 0.636 |
| Large | - | - | - | - | - |

**Table 9.2: Cow Cut Width Statistics for Gibbs (1913-1971)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | - | - | - | - | - |
| Medium | 2 | 2.5 | 3.4 | 2.95 | 0.636 |
| Large | - | - | - | - | - |

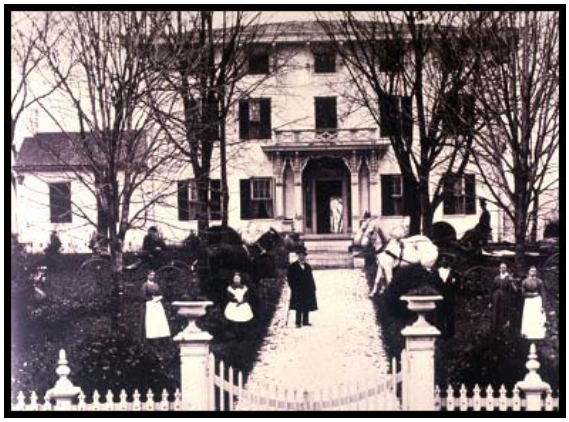
# Chapter X

## The Perez Dickinson Site (40KN128)

### History and Archaeological Excavations

The Perez Dickinson Site represents a high socioeconomic urban residence located on the corner of present day Main Avenue and Locust Streets in downtown Knoxville (Figure 10.1). The family first arrived from Amherst, Massachusetts, to Knoxville in 1828, and was influential in the establishment of local educational and business sectors. The downtown home was first built by the Campbell family in 1818. In 1832, it was purchased by Dickinson's brother-in-law, Joseph Eastabrook Dickinson also lived in the small home at that time. The property was sold to Dickinson in 1851. He quickly made a structural addition adding to the grandeur of the house. During the Civil War he gave property rights to his Southern born relatives due to growing city tensions and his exile in 1862 for slave ownership and Confederate sympathies (Baumann 1995, 1996).

Dickinson returned in 1864, reclaimed the downtown property, and soon began remodeling that lasted from 1866 to 1868. This is likely the time that the slave quarters, evident archaeologically, were torn down and the home became the epitome of high status. Dickinson purchased Williams Island (on the Tennessee River) and 164 acres along the Southern bank for what he called his "Island Home" in 1870. This property served as a farm having caretakers and specialists that were "employed to develop hybrid livestock that included horses, cattle, dairy, and hogs" (Baumann 1995). No archaeological investigation has been made of the "Island Home" making any evaluation of on-site butchery impossible for this study. However, it does not appear that Dickinson



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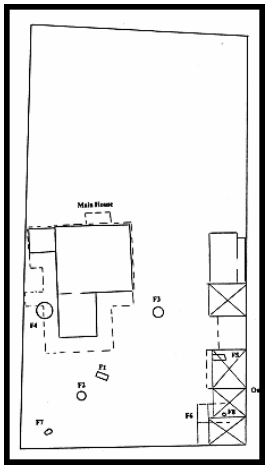


c

**Figure 10.1: The Perez Dickinson House (a and b) and Plan view from 1890 Sanborn Map (c)**

and family ever lived at this location only using it for entertainment purposes.

In 1893, Dickinson sold the Main Street property to his niece Mary Cowan and her family, but he continued to reside there until his death in 1901. Cowan sold the property in 1904 to C.B. Atkins who remodeled the property to an unknown degree. At some point in the 1940s, the property was sold, razed, and converted to a parking lot. This effectively capped cultural remains until salvage recovery in 1988 during construction of the Sovran Bank.

Though time and funding were not available for extensive excavations of this site, limited recovery of features was accomplished by University of Tennessee archaeologists under the direction of Charles Bentz (1990). Eight features were recognized as including three cisterns, one privy, two pits/privies, and the former slave structure. Each contained faunal remains for analysis. Remains were hand collected during shovel skimming (Faulkner personal communication), which introduces a sampling bias at this site. However, the author thinks that medium to large mammal remains are sufficiently represented due to high visibility.

## Subsistence

*Antebellum--Early 20$^{th}$ century (1832-1904)*: All remains were analyzed by the author (Appendix II). Domestic pig contributed the most to the diet (30% NISP), but is much lower than any other site occupied during this period. There is higher reliance on beef (16% NISP) compared to other sites. Beef may have been conveniently purchased at the local market or butcher shop for individual meal servings.

There is a possibility that the Dickinson household kept one or a few livestock that may have been fully or partially butchered on site, and is supported by minimal

evidence of low utility pig elements. There is no archaeological evidence suggesting cattle were kept on the urban property. The absence of any wild species is in contrast to more rural and lesser status sites in this study (see chapters VI and VII). According to this evidence, the Perez Dickinson family's urban location, wealth, and market convenience created a much different subsistence pattern than is generally accepted for the Upland South.

## Butchery

*Antebellum-Early 20th Century (1832-1904):* A high percent of mammalian remains show evidence of butchery (24% NISP). There are few remains chopped (11% NISP) while sawn cuts are highly represented (89% NISP). Of the identified sawn cuts, cow is the most frequently represented species. This suggests primarily a purchasing strategy where individual cuts of meat would have been available.

## Tool Use and Cut Width

*Antebellum-Early 20th Century (1832-1904):* The band and kitchen/meat saws are represented at the Perez Dickinson Site (Figure 10.2). Most sawn cuts (45.8%) show band saw evidence. Beef cuts of the pelvis dominate this sample with few pig cuts showing band sawn evidence. The kitchen/meat saw is represented on fewer specimens (37.5%). Fragmentation is responsible for the high percent of unidentified specimens showing this evidence. However, beef cuts of several skeletal elements are the most highly identified kitchen/meat sawn species.

Cut widths for domestic cattle (Figure 10.3) are in three size groupings. These categories differ from other sites. The smallest and most numerous category is represented by pelvis and lumbar vertebrae cuts and corresponds to small sized cuts of

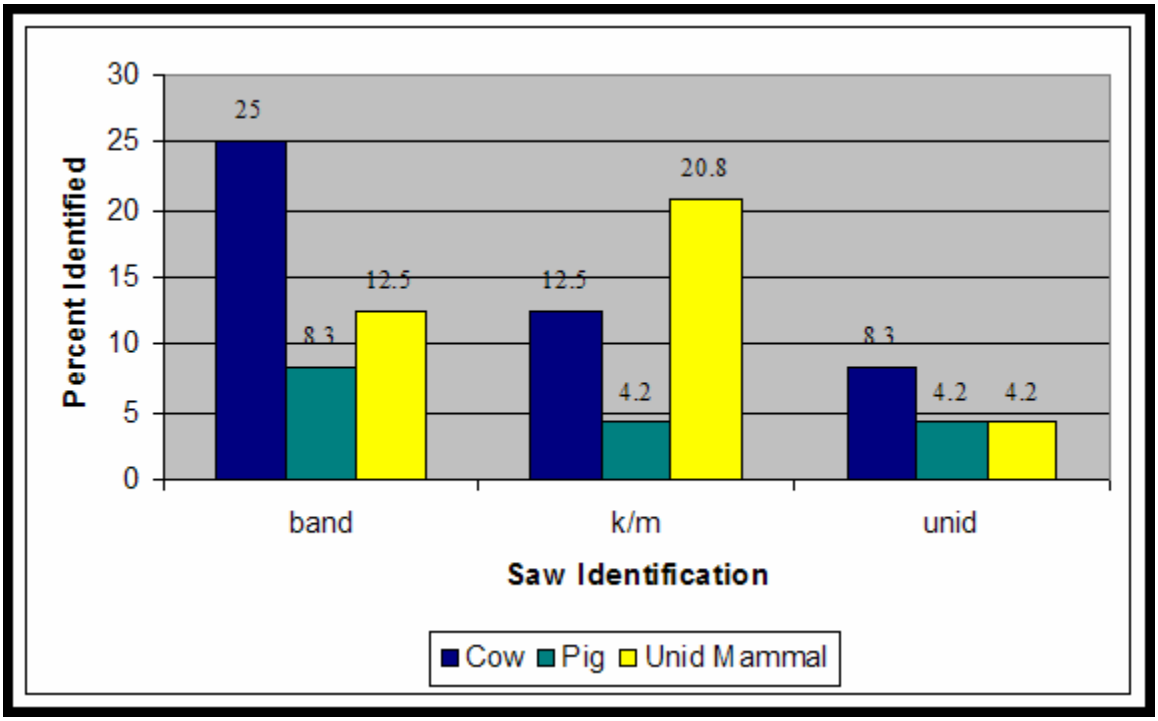


**Figure 10.2: Saw Evidence by Species at the Perez Dickinson Site (1832-1904)**

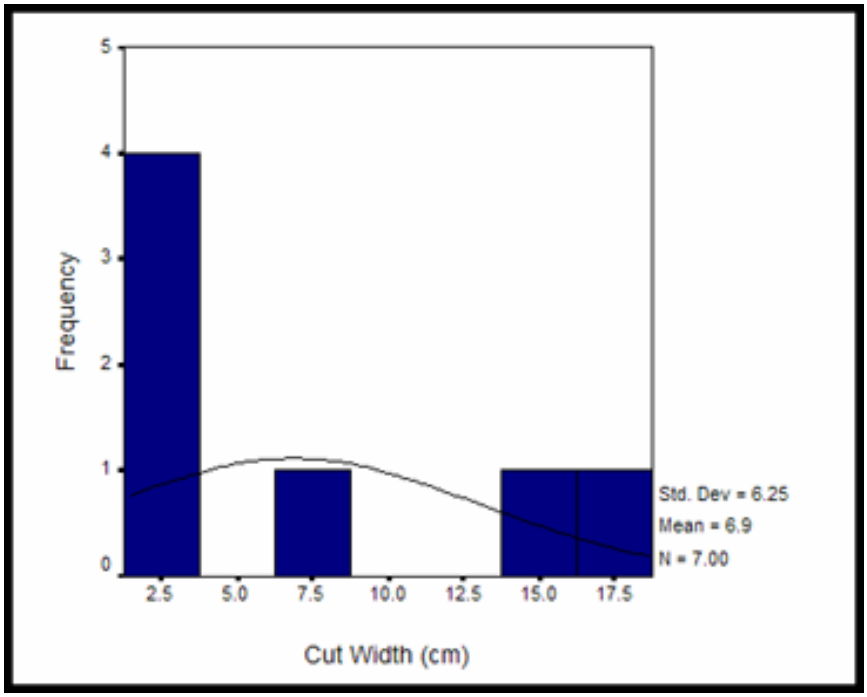


**Figure 10.3: Cut Widths for Cow at the Perez Dickinson Site (1832-1904)**

other samples. The medium grouping including one humerus segment is similar to large cuts of other sites. The abnormally large category includes tibia cuts and is unique to this site. Pig cuts are too few to warrant detailed discussion.

## Site Summary

The Perez Dickinson site, a high status urban residence, was occupied from the antebellum to early twentieth century. Evidence is unique in subsistence and butchery. Though pig is the most highly represented species, it is a comparatively small part of the family diet. A high dependence on beef represents a drastically different subsistence pattern than observed at more rural sites.

The band saw is the most frequently identified butchery tool with the kitchen/meat saw also observed. Both are highly represented on beef cuts in this urban sample, opposed to pork in rural samples. Cow cut width is represented by three size categories (Table 10.1) that are larger than those of other samples. The data presented in this chapter suggest that occupants of the Perez Dickinson site practiced a purchasing strategy with minimal evidence for home butchery of swine. Convenient access to urban butchers and markets appears to influence this assemblage.

**Table 10.1: Cow Cut Width Statistics for Perez Dickinson (1832-1904)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | 2 | 1.8 | 1.85 | 1.83 | 0.035 |
| Medium | 2 | 2.9 | 3 | 2.95 | 0.071 |
| Large | 3 | 7.4 | 16.8 | 12.8 | 4.85 |

# Chapter XI

## The Sixth Avenue Dump Site (40KN83)

### History and Archaeological Excavations

As is typical with illegal dump sites, there is not a wealth of information on who made use of this dump area. However, the Sixth Avenue Dump was surface collected by students in the University of Tennessee Department of Anthropology, when intensive looting by local artifact hunters was discovered. Though archival information is scarce, limited analysis of artifacts was performed in 1979 and 1987 yielding some valuable information on differing artifact classes. These include ceramics (Groover 1979) and bottles (Myster 1987), and the current study of surface collected faunal remains.

The Sixth Avenue Dump is located on the corner of North Sixth Street and Brown Avenue in north Knoxville. The area of concentration is a small ravine of unknown original dimensions in a presently low socioeconomic neighborhood. Though the ravine had experienced some natural infilling from the point of first investigation, it has recently been an infrequently used dumping area with modern debris such as plastic and paper only visible at the surface.

Sanborn Insurance maps of 1890 and 1903 give some clue to original occupants of the area. In 1890 the neighborhood was not included on the insurance maps, which discontinue their survey roughly a half mile shy of the site's intersection. This suggests that the inhabitants of this intersection were not considered a part of metropolitan Knoxville at that time. However, it is included by 1903 suggesting that the intersection was considered inside urban Knoxville by the turn of the century. Dating of the surface

collected bottles by Myster (1987) indicates the dump was used from 1906 to 1916 with heaviest dumping in the earlier part of this range (Myster 1987).

Previous study of the collected ceramics was performed by Groover (1979). According to his analysis all ceramics are dated to the range of 1905 to 1920 which is consistent with Myster's (1987) assertion. Myster assumes (1987) that the bottle date range of 1906-1916 is the most accurate due to the relatively short cycle of purchase, use, and disposal of container bottles.

Research on the beginning dates of "effective" garbage collection in Knoxville was also proposed as a means of dating the upper limits of the site's age. "Effective" garbage collection is described by Myster (1987) as the point in time when city collection became more convenient and subsequently discouraged active dumping in ravines such as that of the Sixth Avenue Dump. The best record of such a transition in garbage disposal is from Mr. Charles V. Patton who reflects (in 1956) that it was "forty years ago [1916] when a fleet of one-horse or one-mule carts were used by the score of more men to pick up garbage in the narrow alleys at the rear of houses all over Knoxville" (Patton 1956). It is unknown how much or what sections of Knoxville had such a service at that time. It is likely that this service was first offered to areas of higher socioeconomic standing and of more central urban location than found at the site intersection. Also, it is not known where the collected garbage was taken for final disposal. Therefore, it is possible that the dump was still used at this time by neighborhood residents.

Myster (1987) does note that great advances were made in the mid-1930s when collected garbage was disposed in a new city-owned landfill. This transition is documented by Albert Rogers who remembered the reasons: "…the city had an old

incinerator that wouldn't light so much as a cigarette. It needed extensive repairs and it was too small to meet the needs of the growing population. So the city hunted a spot in West Knoxville and began a land-fill" (Rogers 1956). Myster (1987) considers the combination of initial landfill use and advancements in transportation and roads as the time when "effective" garbage collection to the site area became available. He assigns an arbitrary date and maximum dumping limit of 1940 for this reason.

Consumer choice was also addressed by Myster (1987) through investigating where the individuals purchased their drugs and of what quality they typically consumed. Based on drugstore labels, city directories, and Sanborn maps Myster (1987) was able to illustrate that most drugs were purchased from downtown Knoxville along major transportation routes. This suggests that a special trip was not usually taken for these purposes. Additionally, there were no bottles from two drugstores that were located only five blocks away in 1915 and 1925. Therefore, consumers were choosing to shop downtown instead of near home due to convenience to work or other unknown reasons.

There is also reason to presume that the dumped material was accumulated by lower to lower-middle class residents within a block of the site. Considering the natural occurrence of this and other similar ravines in the area it is more likely that the people who created the dump lived adjacent to it. The archival and present data suggest to Myster (1987) that, "Both today and in the past the area was sparsely occupied by wooden framed houses of a lower to low-middle class people…Nearly all bottles are cheap common varieties with their contents well within the price range of the people surrounding the site." On the other hand, ceramic evidence (Groover 1979) has a high percentage of porcelain and semi-porcelain pieces that would indicate a higher

socioeconomic standing. Myster (1987) explains this contradiction through two biases in ceramic analysis. "By the early part of the 20th century most people could afford to own at least some porcelain…[and] people tend to collect and hang on to valuable pieces of ceramics (the "heirloom affect") thus much of the porcelain we see at the dump site may be from earlier times that have been accumulated by people living in the houses."

Though there is a lack of archival or individual resident records that would definitively answer who dumped at this site, one can deduct certain information from the evidence presented here. The small ravine was used extensively between 1906 and 1916 by people living in close proximity to the site. These people were likely of a lower to low-middle class socioeconomic status. Though there are some problems with these inferences, the disturbed context and lack of records leaves little assistance in deciphering a more detailed and accurate site history.

## Subsistence

*Early 20th Century:* Faunal remains were analyzed by the author (Appendix III) and represent a very different pattern from any other site in this study. Cattle remains are highly represented (42.3% NISP). This reflects the later time period when beef became more affordable and common in the southern diet (Root and de Rochemont 1976). However, domestic pig (55.8% NISP) maintains. There is a lack of any other mammalian species represented indicating that hunting of wild species was not common.

## Butchery

The high percentage of butchered remains (87.3% NISP) supports a purchasing trend. The majority of butchered remains are sawn (37% cattle; 50% pig). The low percent (15.1%) of butchered specimens shows chopping evidence demonstrating that

home butchery was not common. There is a large variety of skeletal elements represented by butchered remains suggesting no specific pattern of consumer choice at this site.

## Tool Use and Cut Width

The Sixth Avenue Dump cuts are almost equally represented by the band and kitchen/meat saws (Figure 11.1). The majority of these cuts are of domestic pig longbones, particularly the humerus for both saw evidence. There is a high frequency of band sawn beef cuts with the majority from the pelvis and lumbar region. Interestingly, many pig remains were sawn with the kitchen/meat saw while cattle were processed using a band saw. This may suggest separate butchery facilities for each species.

Due to the large number of sawn bone cuts, each species cut width was charted. Pork cuts are the most frequently present at this site (Figure 11.2). Small pork cuts dominate the pig remains. Medium and large sized categories are also present. Unlike other sites, the medium and large cuts are of a variety of skeletal elements and show no patterning. Beef cut measurements (Figure 11.3) shows a more even distribution with significantly more small sized individual servings. The medium size range is represented by rib portions. Almost complete tibias with one sawn end create the comparatively large sized illustrated cuts. Cuts unidentifiable to species are all within the small sized category (Figure 11.4).

## Site Summary

The Sixth Avenue Dump represents a site on the urban outskirts of Knoxville utilized during the early part of the twentieth century (1906-1916). Beef and pork remains are present, but cow is more frequent than at other sites. Also, a lack of low utility

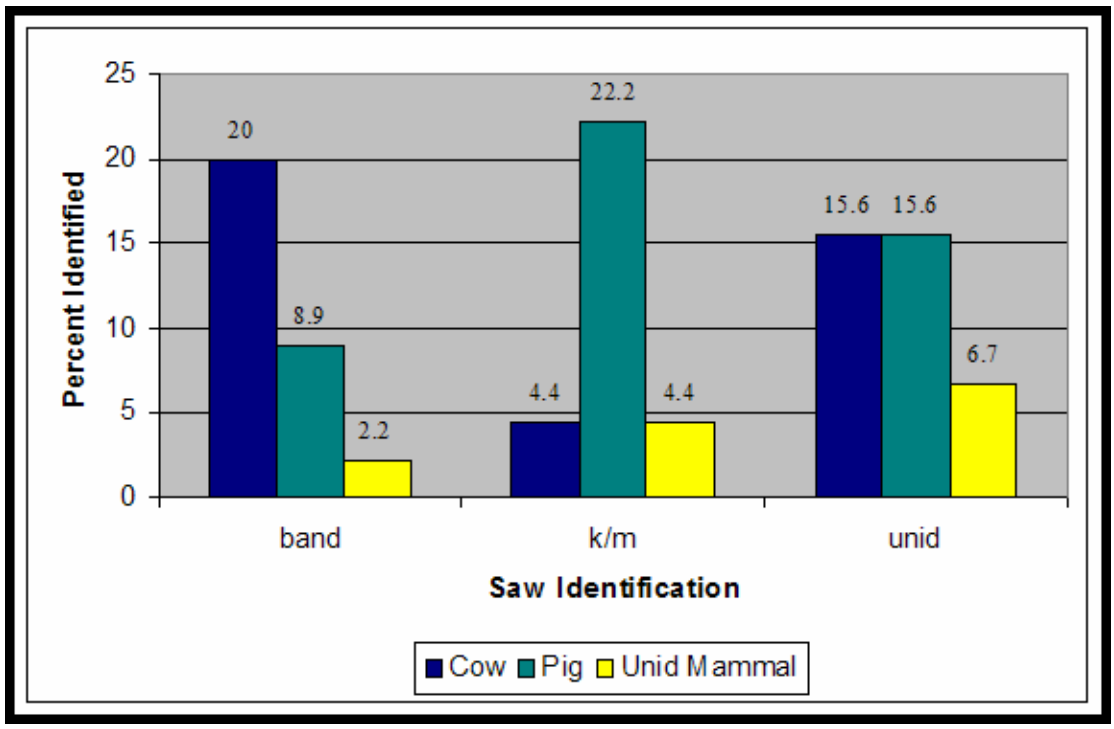


**Figure 11.1: Saw Evidence by Species at the Sixth Avenue Dump**

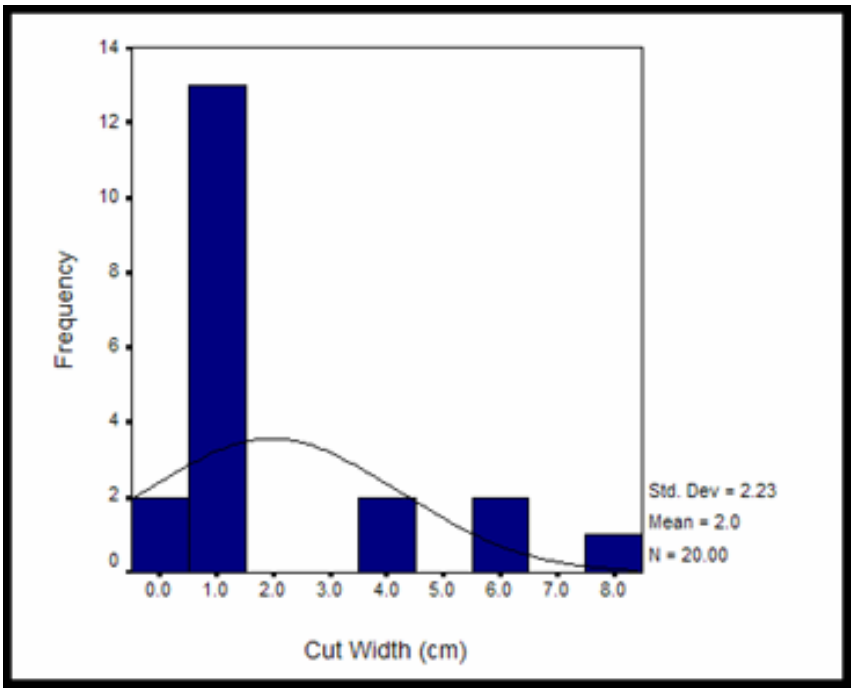


**Figure 11.2: Cut Widths for Pig at the Sixth Avenue Dump**

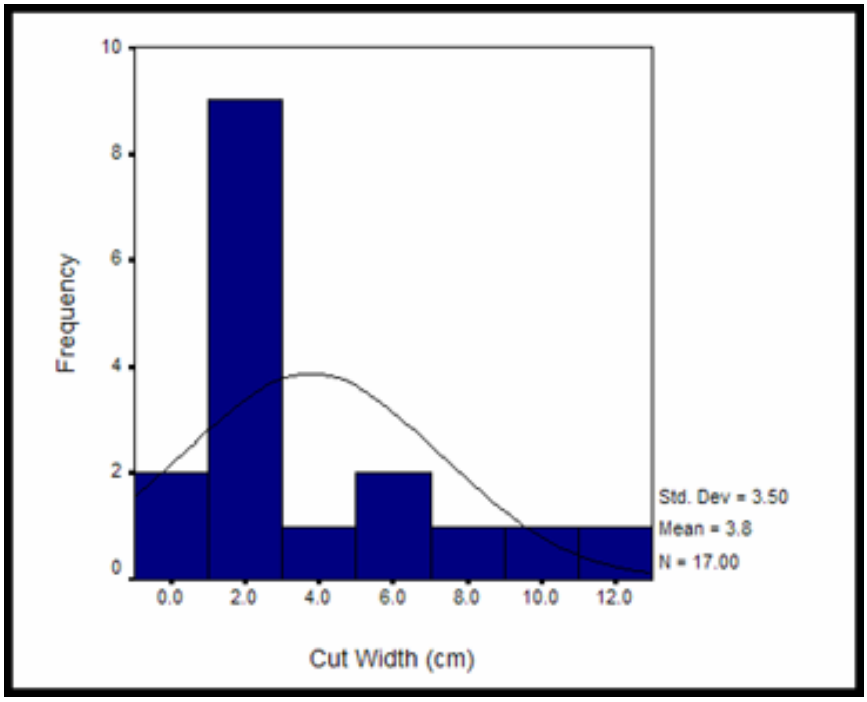


**Figure 11.3: Cut Widths for Cow at the Sixth Avenue Dump**

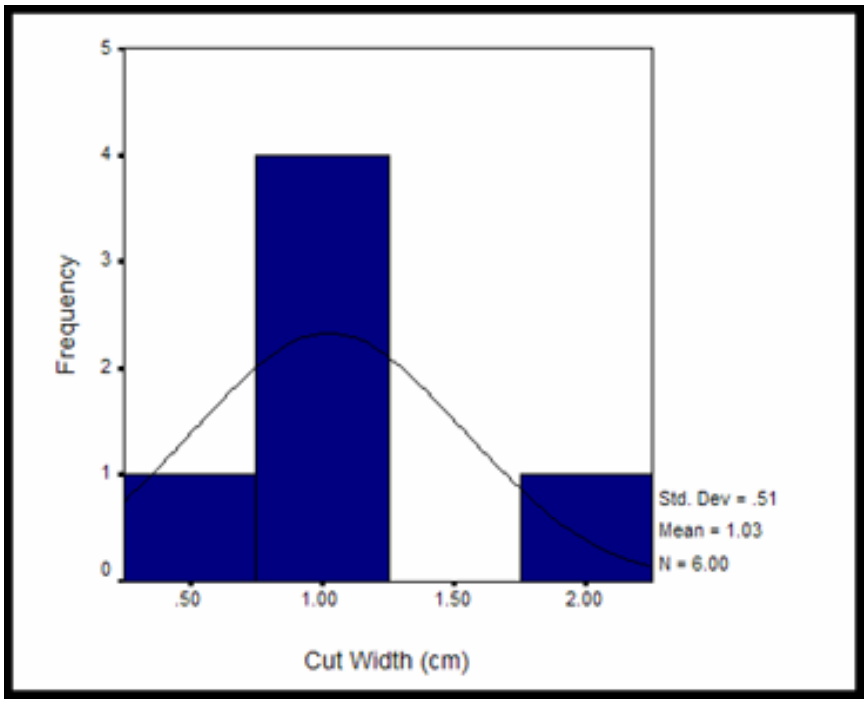


**Figure 11.4: Cut Widths for Unid Mammal at the Sixth Avenue Dump**

elements for either species indicates that home butchery was not common. The band and kitchen/meat saws are almost equally represented in this sample. Band sawn cuts are dominated by cattle, while kitchen/meat sawn cuts are mostly of pig. This indicates separate butchery facilities for each species. Cut widths for both cow and pig are in three size categories (Table 11.1 and 11.2) with Georgian cuts being the most frequent. Evidence suggests a purchasing trend consistent with historical advancements in the nation wide meat market in the early twentieth century.

**Table 11.1: Pig Cut Width Statistics for Sixth Avenue Dump (1906-1916)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | 15 | 0.3 | 1.3 | 0.79 | 0.292 |
| Medium | 2 | 3.7 | 4 | 3.85 | 0.212 |
| Large | 3 | 6.1 | 7.5 | 6.6 | 0.781 |

**Table 11.2: Cow Cut Width Statistics for Sixth Avenue Dump (1906-1916)**

| Size | No. | Min (cm) | Max (cm) | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Small | 10 | 0.7 | 2.25 | 1.56 | 0.544 |
| Medium | 3 | 2.6 | 5.1 | 3.93 | 1.26 |
| Large | 4 | 6.3 | 12.4 | 9.18 | 2.84 |

# Chapter XII

## The Golf Range Dump Site (40KN143)

### History and Archaeological Excavations

The Golf Range Dump is an area of illegal garbage disposal from surrounding neighborhoods in the 1930s and 40s, on the outskirts of urban Knoxville. This site, though extensively looted by bottle hunters, has been the subject of archaeological investigation through historic research and surface collection by University of Tennessee Department of Anthropology students. The property is presently situated between the West Knox High School football field (adjacent to Sutherland Avenue) and Third Creek.

In the late nineteenth century, the property was owned by Lewis Brooks and B.H. Sprankle. W.P. Washburn consolidated the property by purchasing both lots in 1892 and 1895. It remained in his possession until his death and purchase by the city in 1929 and the county in 1991. Until 1929 the property was an open pasture according to the 1884/85 USGS map and was located outside of urban Knoxville. The industrial growth of the city included this area according to a 1920 map labeling the area "AVAILABLE M'F'G. SITES" with no roads at that time.

It was at some point during the 1920s that amateur pilots began to utilize the open field as an unofficial runway; however, by 1929 the area was "purchased by the Tyson family and donated to the city in the name of Charles McGhee-Tyson who was the first aviator killed" in World War I (Owens 1995). The 1936/37 USGS map shows this first location of the city's airport adjacent to the dump site. The airline industry soon outgrew the small airport on Sutherland, and was forced to move to the present location in Blount County in October 1937 though many amateurs continued to utilize the runway. Shortly

there after the U.S. Amory was built, and the Tennessee Valley Authority also leased the area during the 1940s (Owens 1995).

According to informants, the field was used by local youths for recreation with Mr. Towle, and Mr. and Mrs. Fred Norris remembering the area as a baseball field (Owens 1995). Additionally, close access to the railroad made this open area ideal for the circus location recalled Mr. Towle and Norris. By 1951 West High School was built and soon turned the open area into the school's football field.

During the time, the wooded area of the dump site remained relatively unchanged according to Mr. Norris, and is called a "jungle" by Mr. Towle. Specifics on the dump site are limited at best. Owens (1995) did obtain some information from informants ambiguously indicating that everybody used the dump. Mr. Towle recalled "families living north of Sutherland, in Knox County, pushing a wheelbarrow full of garbage to the dump" (Owens 1995). Also, many balls were lost in the dump and "he [Mr. Towle] would have to station a player near the wooded area to prevent foul balls from rolling into the dump" (Owens 1995). With construction of the school, increased interest in patrolling the property as Mr. Towle had to gain permission to use the baseball field and states that "he felt that dumping had stopped" by this time period (Owens 1995).

Use of the Golf Range Dump by both city and county residents is also supported by Mr. William Gerros who worked for the city of Knoxville garbage collection. According to the data provided by multiple informants of the Golf Range Dump and dating of the surface collected artifacts, Owens (1995) attributes formation and highest frequency of dumping from 1939 to 1947.

Owens (1995:6) states, “Those who lived in the area during the time of the dump’s formation would have played an integral role in the site composition,” but “the possibility that some refuse was brought from outside the immediate area is not ruled out.” Therefore, an evaluation of the nearby residents at the time of dumping is integral to understanding the context of the recovered artifacts. Mr. Towle vividly recalled how poor everyone was prior to World War II stating, “If it weren’t for Creasy Greens [a local farm]  and berries, we’d starved” (Owens 1995:7). Mr. Tobler also recalled houses in the area virtually being built overnight from preconstructed walls that were assembled by number. This suggests low quality housing in the 1940s. The area was known for its substantial low socioeconomic African American population before, during, and after dump use as recalled by several informants, and it is suggested these families were the primary dumpers. It was during this time period that there was a drastic influx in the population of the nearby community as evidenced by a 229% increase in number of structures from 1937 to 1953 (Owens 1995). This would have undoubtedly called for increased area for garbage disposal making utilization of a secluded marginal area ideal.

Therefore, the Golf Range Dump represents an urban dumping location for a low socioeconomic community during the late 1930s and 40s. Though specific historic records are limited, they are consistent with artifact analysis making the dump a good comparison for this study. Unfortunately, the bone preservation at this site is less than ideal and taphonomic biases must be considered in the following analysis.

## Subsistence

Taphonomic biases affect smaller bones in this assemblage. However, the occurrence of domestic pig and cattle indicates that evidence of these large and medium

sized mammals is adequately preserved at this site for analysis by the author (Appendix IV). Adoption of a largely beef diet is evident at the Golf Range Dump. This trend appears prevalent by the early twentieth century in the South and the United States as a whole. Domestic cow is highly represented (72.3 % NISP) while evidence for pig consumption (11% NISP) is much less than any other site. No other species are represented indicating that the individuals dumping at this site preferred beef and did not actively hunt or incorporate wild species into their diet. Element representation appears to be skewed towards larger cuts such as roasts. This suggests that the meat yield and cost efficiency affected consumer choice at this site or may be related to the biased sample.

## Butchery

The majority of remains from the Golf Range Dump is butchered (52.9%) and is overly represented by beef remains (55.6% ) instead of pig (22.2%). It is likely that more remains would exhibit butchery evidence if erosion were not so widespread. Most butchered remains (77.8%) were sawn with the remaining specimens being chopped. Evidence suggests a purchasing strategy of mostly beef by those using the dump.

## Tool Use and Cut Width

The high percentage of sawn remains is indicative of increased market involvement. The high frequency of band sawn beef remains with no other saw represented supports this assertion (Figure 12.1). The few pig cuts could not be identified to butchery tool. Cut widths are not discussed in detail due to few specimens. However, the cuts vary greatly in size as many sawn specimens are almost complete elements.

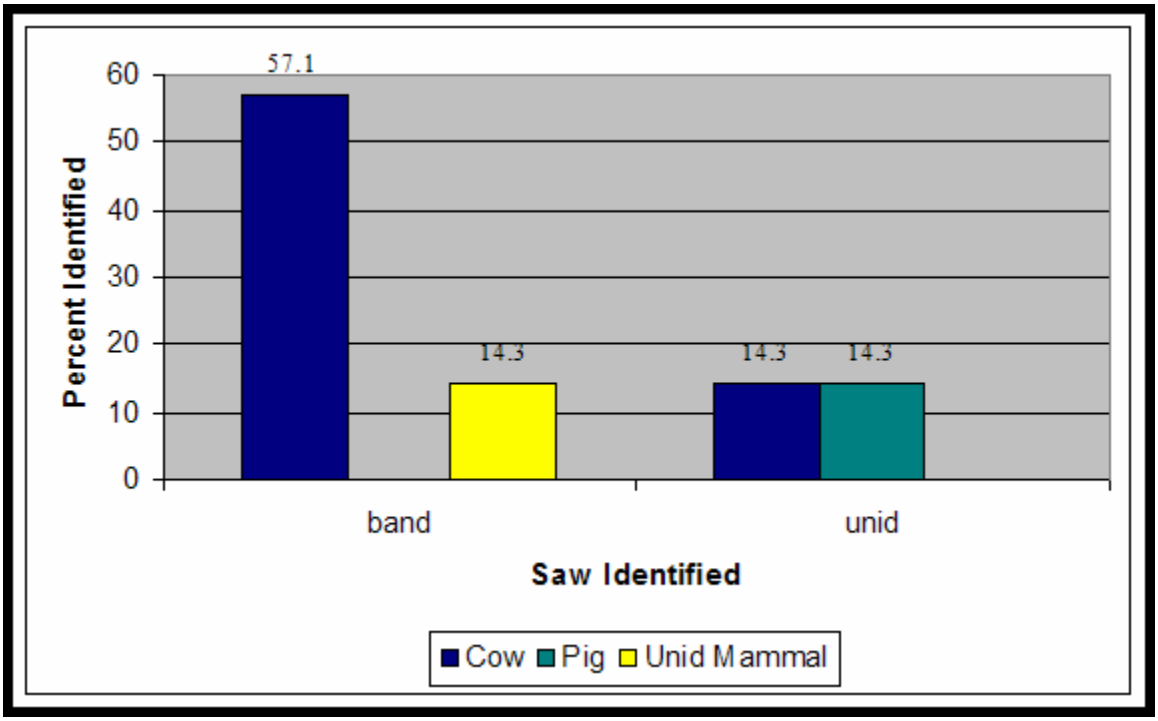


**Figure 12.1: Saw Evidence by Species at the Golf Range Dump**

Site Summary

The Golf Range Dump is representative of an illegal trash disposal area by surrounding neighborhoods of low socioeconomic status during the 1930s and 40s. Faunal evidence is limited due to taphonomic issues and may not fully represent the dietary choices of the dumpers. However, beef and pork are evidenced with a high reliance on large beef cuts versus individual steaks. The absence of wild game or evidence for home butchery indicates that supplemental meat sources were not utilized, and purchasing was predominate.

The only saw evidence identified in this small sample is the band saw. This is predominately visible on beef remains of widely different sizes. The small number of sawn remains does not separate into categories as seen at other sites. This is due to almost

full beef elements represented that are quite large and would have been for commensal meals. Georgian cuts are only minimally observed. Cut width is not further discussed for these reasons.

# Chapter XIII

## Discussion and Conclusions

This zooarchaeological study on the Knox County, Tennessee, meat market shows that archaeological trends in this restricted region parallel historic documentation of increased competition with technological advancements. Investigation of mammalian subsistence dependency, butchery patterns, tool use, and cut width at a diversity of historic sites demonstrates the value of integrative zooarchaeological research. Historical records assist in regional interpretation through providing evidence of the broader local and national framework of the meat market.

Though much information can be deduced from traditional zooarchaeological methods, emphasis on the type of saw utilized and cut width over time has been particularly helpful in determining the degree of market involvement at each site in this study. Comparison of these data and the historical record has led to a broader view of subsistence activities during Knoxville's urban and commercial growth from the 1790s to the 1940s.

The evidence presented in this study shows that there is increasing amounts of market involvement over time. The kitchen/meat saw is the dominate tool observed on sawn cuts prior to the Civil War. This indicates that this tool was readily available from the earliest times of Tennessee settlement. Hack saw evidence is also observed with no other saw represented in this sample.

Band saw evidence, though seen in one antebellum assemblage, is minimally observed until the postbellum and later periods. This is consistent with historic documentation of the meat packing industry that experienced rapid growth during and

after the Civil War. Electricity was not available in Knoxville until the 1880s. Therefore, early evidence of the band saw (1821-1866 at the Ramsey Site) indicates that it was originally steam powered in the meat market. Further research on additional faunal assemblages of this time period could serve to narrow this date of initial band saw use in the local meat processing plants. The percent of band sawn remains increases with time and dominates the mid-twentieth century assemblage in this study.

The Georgian trend of individual meat servings is observed throughout all time periods. These cuts are produced by home and commercial butchers without any distinguishing qualities other than through band saw evidence. However, commensal cuts of medium and large sizes are also consistently present. Evidence for three size categories at most sites and periods in this study attests to the relatively standard sizes popular through time. A summary of these categories from all sites and periods is presented in Table 13.1 and 13.2 for future comparison.

In conclusion, the best evidence for increased competition, mass production, and nationalization of the meat market is observed through increased band sawn remains and historic advertisements with time. These faunal remains also strongly suggest purchasing versus home butchery due to the cost of the tool. The kitchen/meat saw evidence could indicate home or commercial butchery as it is used throughout all periods. Additionally, cut width data indicate that the Georgian trend did not increase in popularity over time. Instead, cut size categories remain relatively standardized in the region. Future studies that include more sites and locales are needed to investigate this trend further, and would assist in understanding changes in the meat packing industry over time and space.

**Table 13.1: Average Pig Cut Widths by Size Category for Reported Sites and Periods***

| Size | No. | Mean | Standard Deviation |
|---|---|---|---|
| Small | 39 | 1 | 3.12 |
| Medium | 20 | 3.75 | 0.479 |
| Large | 7 | 6.68 | 0.371 |

**Table 13.2: Average Cow Cut Widths by Size Category for Reported Sites and Periods***

| Size | No. | Mean | Standard Deviation |
|---|---|---|---|
| Small | 17 | 1.567 | 0.26 |
| Medium | 14 | 4.14 | 0.902 |
| Large** | 7 | 10.9 | 2.56 |

*means are calculated only from those reported for each site
**mean is inflated by some very large specimens

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# Appendices

**Appendix I: Sawn Bone and Cut Widths from Sampled Sites**

Periods: 1=Frontier (Late 18th-Early 19th Century); 2=Antebellum (Early-Mid 19th Century); 3=Bellum (Civil War); 4=Postbellum (Late 19th Century); 5=Early 20th Century; 6=Mid 20th Century

| Site | Unit/STP | Fea | Lev | Lot | Saw | cm | Taxon | Element | Side | Section | Period | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40KN120 | 113 | | 1 | 4091 | band | 4.4 | Sus scrofa | rib | - | - | 5 | saw/saw |
| 40KN120 | 99 | | 1 | 3872 | band | 2 | Sus scrofa | tibia | - | shaft | 5 | saw/saw |
| 40KN120 | 111 | | 1 | 4032 | band | 3.1 | unid mammal | frag | - | - | 5 | saw/chop |
| 40KN120 | 46 | | 1 | 3318 | band | 1.9 | Sus scrofa | frag | - | - | 5 | saw/? |
| 40KN120 | 31 | | 1 | 1898 | band | - | Sus scrofa | longbone | | shaft | 5 | saw/? |
| 40KN120 | 31 | | 1 | 1898 | band | - | unid mammal | frag | - | - | 5 | saw/? |
| 40KN120 | 33 | | 1 | 1904 | band | 1.85 | Bos tarus | cervical vert | - | - | 5 | saw/saw |
| 40KN120 | 117 | | 1 | 4256 | k/m | 5.6 | Bos tarus | rib | - | - | 5 | saw/saw |
| 40KN120 | 63 | | 1 | 3443 | k/m | 5.5 | Bos tarus | ischium | - | - | 5 | saw/saw |
| 40KN120 | 119N84E | | 1 | 289 | band | 0.8 | Sus scrofa | humerus | - | shaft | 5 | saw/saw |
| 40KN120 | 110N90E | | 1 | 4 | k/m | 5.1 | Sus scrofa | rib | - | - | 5 | saw/? |
| 40KN120 | 116N90E | | 1 | 11 | k/m | 3.5 | Bos tarus | rib | - | - | 5 | saw/? |
| 40KN120 | 46 | | 1 | 3369 | k/m | 9.9 | Sus scrofa | rib | - | - | 5 | saw/chop |
| 40KN120 | 45 | | 1 | 3315 | band | 1.6 | Bos tarus | longbone | | | 5 | saw/saw |
| 40KN120 | 45 | | 1 | 3315 | band | 1.15 | Bos tarus | longbone | | | 5 | saw/saw |
| 40KN120 | 134N91E | | 1 | 349 | k/m | 3.9 | unid mammal | rib | - | - | 5 | saw/? |
| 40KN120 | 63 | | 1 | 3443 | k/m | 3.1 | Sus scrofa | rib | - | - | 5 | saw/saw |
| 40KN120 | 110N90E | | 1 | 4 | band | 1.2 | Bos tarus | ischium | - | - | 5 | saw/saw |
| 40KN120 | - | | 1 | 17 | band | - | Bos tarus | rib | - | - | 5 | saw/? |
| 40KN120 | - | | 1 | 17 | k/m | 5.4 | unid mammal | rib | | | 5 | saw/saw |
| 40KN120 | 23 | | 1 | 1807 | band | - | unid mammal | frag | | | 5 | saw/? |
| 40KN120 | 42N21E | | 1 | 749 | band | 0.75 | Bos tarus | longbone | | shaft | 5 | saw/saw |
| 40KN120 | 58 | | 1 | 3408 | band | 4.8 | Sus scrofa | rib | - | - | 5 | saw/saw, eroded |
| 40KN120 | 128N98E | | 1 | 60 | unid | 1.1 | Sus scrofa | longbone | - | shaft | 5 | saw/saw, eroded |
| 40KN120 | 113N81E | | 1 | 247 | unid | - | unid | frag | - | - | 5 | saw/? |
| 40KN120 | - | | 1 | 17 | unid | - | unid mammal | frag | - | - | 5 | saw/? |
| 40KN120 | 23 | | 1 | 1807 | unid | - | unid mammal | frag | | | 5 | saw/? |
| 40KN120 | 23 | | 1 | 1807 | unid | - | unid mammal | frag | | | 5 | saw/? |
| 40KN120 | 23 | | 1 | 1807 | unid | - | Bos tarus | rib | - | - | 5 | saw/saw |
| 40KN120 | 48 | | 2 | 3351 | band | I.8 | unid mammal | unid | - | - | 5 | saw/saw |
| 40KN120 | 87 | | 2 | 3661 | band | - | Sus scrofa | longbone | - | shaft | 5 | saw/? |
| 40KN120 | 45 | | 2 | 3316 | k/m | 6.8 | Bos tarus | metatarsus | right | proximal | 5 | saw/unfused distal |
| 40KN120 | 48 | | 2 | 3352 | band | 1.5 | Sus scrofa | humerus | - | shaft | 5 | saw/saw |
| 40KN120 | 48 | | 2 | 3352 | band | 2.8 | Sus scrofa | radius | - | shaft | 5 | saw/saw |
| 40KN120 | 63 | | 2 | 3444 | band | 0.8 | Sus scrofa | humerus | - | shaft | 5 | saw/saw |
| 40KN120 | 46 | | 2 | 3319 | band | - | Sus scrofa | vertebra | - | - | 5 | saw only |
| 40KN120 | 46 | | 2 | 3319 | band | 5.5 | unid mammal | rib | - | - | 5 | saw/saw |
| 40KN120 | 46 | | 2 | 3319 | band | 5.35 | unid mammal | frag | - | - | 5 | saw/saw |
| 40KN120 | 17 | | 2 | 1788 | band | 1.2 | Sus scrofa | femur | - | shaft | 5 | saw/saw |
| 40KN120 | 31 | | 2 | 1899 | band | 0.4 | Sus scrofa | humerus | - | distal | 5 | saw/saw |
| 40KN120 | 31 | | 2 | 1899 | band | 2.8 | unid mammal | frag | - | - | 5 | saw/saw |
| 40KN120 | 31 | | 2 | 1899 | band | - | unid mammal | frag | - | - | 5 | saw/? |
| 40KN120 | 28 | | 2 | 1845 | band | - | Bos tarus | cervical vert | - | - | 5 | saw |
| 40KN120 | 39 | | 2 | 2019 | band | - | Sus scrofa | longbone | | shaft | 5 | saw/? |
| 40KN120 | 108N15E | | 2 | 1260 | band | 0.3 | Sus scrofa | humerus | - | distal | 5 | saw/saw |
| 40KN120 | 63 | | 2 | 3444 | unid | 0.85 | Sus scrofa | femur | - | - | 5 | saw/saw, eroded |
| 40KN120 | 46 | | 2 | 3319 | unid | 3.35 | unid mammal | rib | - | - | 5 | saw/saw |
| 40KN120 | 31 | | 2 | 1899 | k/m | 0.55 | Sus scrofa | humerus | - | proximal | 5 | saw/saw |
| 40KN120 | 37 | | 2 | 1942 | k/m | 5.7 | Bos tarus | rib | | | 5 | saw/saw |
| 40KN120 | 122N75E | | 2 | 25 | k/m | 1.3 | unid mammal | frag | - | - | 5 | saw/saw |
| 40KN120 | 77 | | 2 | 3523 | band | 1.8 | Bos tarus | rib | - | - | 5 | saw/saw |
| 40KN120 | 63 | | 2 | 3444 | k/m | 0.9 | Bos tarus | femur | - | - | 5 | saw/saw |
| 40KN120 | 46 | | 2 | 3319 | k/m | 3.2 | unid mammal | frag | - | - | 5 | saw/saw |
| 40KN120 | 28 | | 2 | 1845 | k/m | 1.2 | unid mammal | frag | - | - | 5 | saw/saw |
| 40KN120 | 129N90E | | 2 | 55 | k/m | 3.9 | Bos tarus | rib | - | - | 5 | saw/saw |
| 40KN120 | 31 | | 2 | 1899 | k/m | 2.8 | Sus scrofa | rib | - | - | 5 | saw/saw |
| 40KN120 | 78 | | 2 | 3580 | band | 0.7 | Sus scrofa | rib | - | - | 5 | saw/saw |
| 40KN120 | 76 | | 2 | 3559 | band | 6.7 | Sus scrofa | rib | - | - | 5 | saw/chop |
| 40KN120 | 63 | | 2 | 3444 | unid | 2.5 | Sus scrofa | rib | - | - | 5 | saw/? |
| 40KN120 | 128N90E | | 2 | 55 | unid | 4.15 | Sus scrofa | rib | - | - | 5 | saw/saw |
| 40KN120 | 92 | | 3 | 3894 | band | 1.15 | Bos tarus | ilium | - | - | 3&4 | saw/saw |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40KN120 | 95 | | 3 | 3880 | k/m | 4 | Sus scrofa | longbone | - | shaft | 3&4 | saw/saw |
| 40KN120 | 67 | | 3 | 3530 | k/m | 0.8 | Sus scrofa | longbone | - | shaft | 3&4 | saw/saw |
| 40KN120 | 100 | | 3 | 3952 | band | 4.7 | Bos tarus | rib | - | - | 3&4 | saw/saw |
| 40KN120 | 89 | | 3 | 3708 | unid | 1.15 | Sus scrofa | ilium | - | - | 3&4 | saw/saw, eroded |
| 40KN120 | 67 | | 3 | 3530 | unid | - | unid mammal | frag | - | - | 3&4 | saw/? |
| 40KN120 | 73 | | 4 | 3547 | hack | - | unid mammal | frag | - | - | 3&4 | saw/? |
| 40KN120 | 92 | | 4 | 3724 | hack | - | Bos tarus | cervical vert | - | process | 3&4 | saw/saw |
| 40KN120 | 38 | | 4 | 2002 | k/m | 1.1 | Sus scrofa | humerus | - | shaft | 3&4 | saw/saw |
| 40KN120 | 39 | | 4 | 2021 | k/m | - | Sus scrofa | scapula | - | head | 3&4 | saw only |
| 40KN120 | 39 | | 4 | 2021 | k/m | 1.1 | Sus scrofa | ulna | - | proximal | 3&4 | saw/saw |
| 40KN120 | 39 | | 4 | 2021 | k/m | 1 | Sus scrofa | vertebra | - | process | 3&4 | saw/saw |
| 40KN120 | 27 | | 4 | 1852 | k/m | 2.55 | Sus scrofa | femur | | distal | 3&4 | saw/saw |
| 40KN120 | 103 | | 4 | 3927 | k/m | 0.8 | Sus scrofa | longbone | | shaft | 3&4 | saw/saw |
| 40KN120 | 107 | | 4 | 4027 | unid | 0.9 | unid mammal | longbone | - | shaft | 3&4 | saw/saw, ?saw-eroded |
| 40KN120 | 90 | | 4 | 3713 | k/m | 0.9 | Sus scrofa | humerus | - | shaft | 3&4 | saw/saw |
| 40KN120 | 49 | | 4 | 3373 | k/m | 6.9 | Sus scrofa | longbone | | shaft | 3&4 | saw/chop |
| 40KN120 | 79 | | 4 | 3645 | unid | 7.25 | Sus scrofa | rib | - | - | 3&4 | saw/chop |
| 40KN120 | 108 | | 5 | 4029 | back | 1 | Sus scrofa | humerus | unid | | 2 | saw/saw, polish present |
| 40KN120 | 22 | | 5 | 1833 | k/m | 1.2 | unid mammal | longbone | - | - | 2 | saw/saw |
| 40KN120 | 114 | | 5 | 4215 | k/m | 0.9 | unid mammal | frag | - | - | 2 | saw/saw |
| 40KN120 | 22 | | 5 | 1833 | k/m | 1 | Sus scrofa | humerus | | distal | 2 | saw/saw |
| 40KN120 | 115 | | 5 | 4137 | k/m | 4.8 | Bos tarus | rib | - | - | 2 | saw/saw |
| 40KN120 | 22 | | 5 | 1833 | k/m | 1.2 | Sus scrofa | humerus | - | distal | 2 | saw/saw |
| 40KN120 | 46 | | 5 | 3346 | k/m | 3.6 | Sus scrofa | rib | - | - | 2 | saw/saw |
| 40KN120 | 24 | | 5 | 1847 | unid | - | Bos tarus | cervical vert | | | 2 | saw/saw |
| 40KN120 | 66 | | 6 | 3748 | hack | 4.5 | Sus scrofa | humerus | left | distal | 1 | partial saw/chop |
| 40KN120 | 63 | | 6 | 3449 | hack | 0.7 | Sus scrofa | longbone | - | shaft | 1 | saw/saw |
| 40KN120 | - | 93 | | 3525 | hack | 7.9 | Sus scrofa | rib | - | - | 4 | saw/saw |
| 40KN120 | 69 | 96 | | 3634 | k/m | 5.3 | Sus scrofa | femur | - | proximal | 1 | saw/chop |
| 40KN124 | 63 | | 1 | 796 | band | 2.5 | Bos tarus | longbone | - | shaft | 5 | saw/chop |
| 40KN124 | 19 | | 1 | 152 | band | 4.4 | Sus scrofa | rib | - | - | 5 | saw/? |
| 40KN124 | 31 | | 2 | 248 | k/m | - | Bos tarus | astragalus | left | - | 5 | saw only |
| 40KN124 | 14 | | 2 | 129 | band | 3.4 | Bos tarus | rib | - | - | 5 | saw/saw |
| 40KN124 | 62 | | 2 | 804 | band | 3.5 | Sus scrofa | longbone | - | shaft | 5 | saw/? |
| 40KN128 | | 7 | 1 | 88-32 | band | - | Bos tarus | longbone | - | distal | 2 thru5 | saw only |
| 40KN128 | | 2 | 5 | 88-11 | band | 16.8 | Bos tarus | tibia | right | proximal | 2 thru5 | saw/saw |
| 40KN128 | | 2 | 5 | 88-11 | k/m | 14.2 | Bos tarus | tibia | right | shaft | 2 thru5 | saw |
| 40KN128 | | 2 | 5 | 88-11 | k/m | - | unid mammal | longbone | - | - | 2 thru5 | saw/broken |
| 40KN128 | | 2 | 5 | 88-11 | k/m | - | unid mammal | longbone | - | - | 2 thru5 | saw/broken |
| 40KN128 | | 2 | 5 | 88-11 | band | 5.3 | unid mammal | longbone | - | shaft | 2 thru5 | saw/saw |
| 40KN128 | | 2 | 5 | 88-11 | k/m | 5 | Sus scrofa | humerus | - | shaft | 2 thru5 | saw/saw |
| 40KN128 | | 2 | 5 | 88-11 | k/m | - | unid mammal | longbone | - | shaft | 2 thru5 | saw/broken |
| 40KN128 | | 2 | 5 | 88-11 | k/m | - | unid mammal | longbone | - | shaft | 2 thru5 | saw/broken |
| 40KN128 | | 2 | 5 | 88-11 | band | - | unid mammal | longbone | - | shaft | 2 thru5 | saw/broken |
| 40KN128 | | 2 | 5 | 88-11 | k/m | 4.9 | unid mammal | frag | - | - | 2 thru5 | saw/saw |
| 40KN128 | | 2 | 5 | 88-11 | unid | - | unid mammal | frag | - | - | 2 thru5 | saw/saw |
| 40KN128 | | 5 | 30-36cm | 88-29 | k/m | - | Bos tarus | lumbar vert | - | transverse | 2 thru5 | saw/? |
| 40KN128 | | looted | | 88-44 | k/m | 7.4 | Bos tarus | humerus | right | distal | 2 thru5 | saw only, distal |
| 40KN128 | | 4 | | 88-47 | band | 1.1 | Sus scrofa | humers | right | distal shaft | 2 thru5 | saw/saw |
| 40KN128 | | looted | | 88-44 | band | - | unid mammal | longbone | - | shaft | 2 thru5 | saw/broken |
| 40KN128 | | 4 | | 88-47 | band | 3 | Bos tarus | pelvis | right | ilium | 2 thru5 | saw/saw |
| 40KN128 | | 4 | | 88-47 | band | 1.85 | Bos tarus | pelvis | left | ilium | 2 thru5 | saw/saw |
| 40KN128 | | 4 | | 88-47 | band | 0.85 | Sus scrofa | humerus | right | shaft | 2 thru5 | saw/saw |
| 40KN128 | | 4 | | 88-47 | band | 1.8 | Bos tarus | pelvis | right | ilium | 2 thru5 | saw/saw |
| 40KN128 | | 4 | | 88-47 | band | 2.9 | Bos tarus | lumbar vert | - | - | 2 thru5 | saw/? |
| 40KN128 | | 4 | | 88-47 | unid | - | Bos tarus | lumbar vert | - | - | 2 thru5 | saw/?, eroded |
| 40KN128 | | 4 | | 88-47 | unid | - | Sus scrofa | longbone | - | shaft | 2 thru5 | saw/? |
| 40KN128 | | looted | | 88-44 | unid | - | Bos tarus | rib | - | - | 2 thru5 | saw/broken |
| 40KN202 | 8-24 | | 2 | 101 | k/m | 3.7 | Bos tarus | femur | - | shaft | 1 | saw/chop |
| 40KN202 | 8-24 | | 2 | 101 | unid | 3.7 | unid mammal | frag | - | - | 1 | saw/saw, baulk |
| 40KN202 | | | | 140 | k/m | 3.3 | Sus scrofa | humerus | - | shaft | 1 | saw/saw, lacking provenience |
| 40KN202 | | 9 | | 130 | unid | 1.6 | unid mammal | frag | - | - | 1 | saw/saw |
| 40KN202 | | | | - | unid | 8.6 | Bos tarus | rib | | | 1 | saw/chop |
| 40KN202 | | | | 261 | k/m | 5 | Bos tarus | rib | - | - | 1 | sawn/broken |
| 40KN202 | 46 | 6 | | 237 | k/m | 6.4 | Sus scrofa | scapula | - | - | 1 | sawn/broken |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 40KN202 | 46 | 6 | 237 | k/m | 5.2 | Bos tarus | rib | - | - | 1 | sawn/? |
| 40KN202 | 46 | 6 | 237 | k/m | 6.3 | Sus scrofa | femur | - | - | 1 | sawn/? |
| 40KN202 | 46 | 6 | 237 | k/m | 5.35 | Bos tarus | femur | - | - | 1 | saw/? |
| 40KN202 | 74 | 25 | 549 | k/m | 3 | Sus scrofa | femur | - | proximal | 1 | saw/saw |
| 40KN202 | 74 | 25 | 549 | k/m | 3.2 | Sus scrofa | frag | - | - | 1 | |
| 40KN202 | 48 | | 223 | unid | 1.35 | unid mammal | longbone | - | shaft | 1 | saw/saw |
| 40KN83 | | | 1 | k/m | 2.6 | Bos tarus | ilium | left | | 5 | |
| 40KN83 | | | 2 | k/m | 10.7 | Bos tarus | tibia | right | distal | 5 | 1 chop mark present midshaft |
| 40KN83 | | | 25 | k/m | 0.7 | Sus scrofa | femur | - | shaft | 5 | |
| 40KN83 | | | 26 | k/m | 1.3 | Sus scrofa | humerus | - | shaft | 5 | distal shaft |
| 40KN83 | | | 30 | band | 1 | Sus scrofa | humerus | - | shaft | 5 | large pig |
| 40KN83 | | | 32 | k/m | 0.7 | Sus scrofa | humerus | - | shaft | 5 | |
| 40KN83 | | | 51 | k/m | 1.1 | Sus scrofa | humerus | - | shaft | 5 | |
| 40KN83 | | | 52 | band | 0.8 | Sus scrofa | humerus | - | shaft | 5 | good photo |
| 40KN83 | | | 53 | k/m | 0.3 | Sus scrofa | humerus | - | shaft | 5 | |
| 40KN83 | | | 3 | k/m | 7.5 | Sus scrofa | ilium | right | | 5 | |
| 40KN83 | | | 60 | k/m | 0.75 | unid mammal | longbone | - | - | 5 | broken |
| 40KN83 | | | 4 | k/m | 1 | unid mammal | unid | right | distal | 5 | |
| 40KN83 | | | 33 | band | 0.9 | unid mammal | unid | - | shaft | 5 | distal shaft |
| 40KN83 | | | 14 | band | 1.9 | Bos tarus | acetabulum | right | - | 5 | |
| 40KN83 | | | 7 | band | 1.65 | Bos tarus | ilium | left | - | 5 | |
| 40KN83 | | | 9 | band | 12.4 | Bos tarus | tibia | right | distal | 5 | whole distal segment |
| 40KN83 | | | 8 | band | 2 | Bos tarus | vert | - | transverse | 5 | |
| 40KN83 | | | 29 | k/m | 0.8 | Sus scrofa | femur | - | shaft | 5 | |
| 40KN83 | | | 6 | k/m | 1 | Sus scrofa | humerus | left | distal | 5 | saw start present |
| 40KN83 | | | 50 | k/m | 0.75 | Sus scrofa | humerus | - | shaft | 5 | |
| 40KN83 | | | 54 | k/m | 4 | Sus scrofa | rib | - | - | 5 | |
| 40KN83 | | | 10 | band | 1.2 | Sus scrofa | scapula | right | proximal | 5 | |
| 40KN83 | | | 20 | band | 1.2 | Bos tarus | ilium | - | - | 5 | |
| 40KN83 | | | 11 | band | 0.9 | Bos tarus | lumbar vert | - | transverse | 5 | |
| 40KN83 | | | 17 | band | 2.1 | Bos tarus | lumbar vert | - | transverse | 5 | trabecular bone |
| 40KN83 | | | 37 | band | - | Bos tarus | pubis | right | - | 5 | |
| 40KN83 | | | 5 | unid | 7.1 | Bos tarus | rib | - | | 5 | |
| 40KN83 | | | 15 | unid | 1.8 | Bos tarus | rib | - | - | 5 | trabecular bone |
| 40KN83 | | | 18 | unid | 6.5 | Bos tarus | rib | - | proximal | 5 | whole proximal |
| 40KN83 | | | 22 | unid | 1.1 | Bos tarus | rib | - | frag | 5 | |
| 40KN83 | | | 23 | unid | 4.1 | Bos tarus | rib | - | - | 5 | |
| 40KN83 | | | 13 | unid | 5.1 | Bos tarus | tibia | left | proximal | 5 | whole prox segment |
| 40KN83 | | | 21 | band | 0.7 | Bos tarus | vertebra | - | transverse | 5 | trabecular bone |
| 40KN83 | | | 64 | unid | 2.25 | Bos tarus | vertebra | - | - | 5 | |
| 40KN83 | | | 16 | band | 0.6 | Sus scrofa | femur | - | shaft | 5 | |
| 40KN83 | | | 28 | unid | 0.7 | Sus scrofa | femur | - | shaft | 5 | eroded |
| 40KN83 | | | 27 | unid | 0.6 | Sus scrofa | humerus | - | shaft | 5 | distal shaft, eroded |
| 40KN83 | | | 44 | unid | 3.7 | Sus scrofa | ischium | right | - | 5 | immature |
| 40KN83 | | | 31 | unid | 0.3 | Sus scrofa | longbone | - | shaft | 5 | |
| 40KN83 | | | 12 | unid | - | Sus scrofa | lumbar vert | - | transverse | 5 | trabecular bone, immature |
| 40KN83 | | | 24 | unid | 6.2 | Sus scrofa | rib | - | | 5 | eroded, 1 side chopped |
| 40KN83 | | | 19 | unid | 6.1 | Sus scrofa | tibia | right | shaft | 5 | 1 side chop |
| 40KN83 | | | 61 | unid | 0.5 | unid mammal | epiphysis | - | - | 5 | |
| 40KN83 | | | 59 | unid | 2 | unid mammal | frag | - | - | 5 | broken |
| 40KN83 | | | 62 | unid | 1 | unid mammal | frag | - | - | 5 | |
| 40KN143 | | | 5 | band | 9.5 | Bos tarus | radius | right | shaft | 6 | |
| 40KN143 | | | 9 | band | 4.2 | Bos tarus | femur | right | distal | 6 | mature |
| 40KN143 | | | 13 | band | 16.6 | Bos tarus | tibia | left | proximal shaft | 6 | mature |
| 40KN143 | | | 16 | band | 23.8 | Bos tarus | pelvis | left | ace and ischium | 6 | |
| 40KN143 | | | 7 | band | 1.1 | unid mammal | longbone | - | shaft | 6 | |
| 40KN143 | | | 17 | unid | 2.4 | Bos tarus | humerus | left | distal epiphysis | 6 | |
| 40KN143 | | | 8 | unid | 0.8 | Sus scrofa | femur | - | distal slice | 6 | |

**Appendix II: Identified Remains from the Perez Dickinson Site (40KN128)**

| Site | Fea | Lev/Lot | Taxon | Element | Side | Section | No. | Mod |
|---|---|---|---|---|---|---|---|---|
| 40KN128 | | | unid Aves | all | | | 7 | |
| 40KN128 | 2 | 5 | Bos tarus | tibia | right | proximal diaphysis | 1 | hack |
| 40KN128 | 2 | 5 | unid med mammal | longbone | - | shaft | 1 | k/m |
| 40KN128 | 2 | 5 | unid mammal | frag | - | - | 1 | k/m |
| 40KN128 | 2 | 5 | Bos tarus | tibia | right | shaft | 1 | k/m |
| 40KN128 | 2 | 5 | unid | frag | - | - | 2 | kitchen |
| 40KN128 | 2 | 5 | unid | frag | - | - | 2 | unid |
| 40KN128 | 2 | 5 | unid | frag | - | - | 3 | k/m |
| 40KN128 | 5 | | Bos tarus | lumbar vert | - | tranverse process | 1 | k/m |
| 40KN128 | 5 | | Bos tarus | pelvis | left | iilium | 1 | chopped |
| 40KN128 | 5 | | Bos tarus | femur | - | head, epiphysis | 1 | - |
| 40KN128 | 5 | | unid large mammal | unid | - | epiphysis | 1 | - |
| 40KN128 | 5 | | unid Aves | unid | - | - | 4 | - |
| 40KN128 | 5 | | unid mammal | frag | - | - | 15 | - |
| 40KN128 | 4 | | Bos tarus | rib | - | - | 1 | - |
| 40KN128 | 4 | | Sus scrofa | upper M2 | - | - | 1 | - |
| 40KN128 | 4 | | Sus scrofa | rib | - | frag | 6 | - |
| 40KN128 | 4 | | unid Aves | unid | - | - | 4 | - |
| 40KN128 | 4 | | unid med mammal | unid | - | frag | 1 | - |
| 40KN128 | | looted | unid Aves | unid | - | - | 8 | - |
| 40KN128 | | looted | Bos tarus | lumbar vert | - | frag | 1 | - |
| 40KN128 | | looted | Sus scrofa | tibia | right | distal | 1 | broken |
| 40KN128 | | looted | Bos tarus | ulna | right | proximal diaphysis | 1 | chopped |
| 40KN128 | | looted | unid large mammal | frag | - | - | 1 | meat |
| 40KN128 | | looted | Bos tarus | cervical vert | - | - | 1 | - |
| 40KN128 | | looted | Sus scrofa | humerus | right | distal | 1 | - |
| 40KN128 | | looted | Sus scrofa | tibia | right | distal diaphysis | 1 | - |
| 40KN128 | | looted | Sus scrofa | maxilla | right | PM2,3,and 4 | 1 | - |
| 40KN128 | | looted | Sus scrofa | tibia | right | proximal diaphysis | 1 | - |
| 40KN128 | | looted | Bos tarus | rib | - | mid section | 1 | unid saw |
| 40KN128 | | looted | Sus scrofa | lumbar vert | - | spinous process | 1 | - |
| 40KN128 | | looted | Sus scrofa | scapula | - | - | 2 | - |
| 40KN128 | | looted | Sus scrofa | cranial | - | - | 1 | - |
| 40KN128 | | looted | Sus scrofa | M1 | - | upper | 1 | - |
| 40KN128 | | looted | unid mammal | frag | - | - | 3 | - |
| 40KN128 | 4 | - | Sus scrofa | rib | - | mid section | 1 | - |
| 40KN128 | 4 | - | unid mammal | frag | - | - | 2 | - |
| 40KN128 | 4 | - | Bos tarus | lumbar vert | - | tranverse process | 1 | meat/kitchen |
| 40KN128 | 4 | - | unid mammal | frag | - | - | 1 | unid |
| 40KN128 | 4 | - | Bos tarus | lumber vert | - | spinous process | 1 | unid |
| 40KN128 | 4 | - | Sus scrofa | humerus | - | shaft | 1 | meat |
| 40KN128 | 4 | - | Bos tarus | pelvis | right | iilium | 1 | meat |
| 40KN128 | 4 | - | Bos tarus | pelvis | right | iilium | 1 | meat |
| 40KN128 | 4 | - | Bos tarus | pelvis | right | iilium | 1 | meat |
| 40KN128 | 4 | - | Sus scrofa | humerus | right | distal shaft | 1 | meat |
| 40KN128 | 7 | 1 | unid large mammal | unid | | | 1 | k/m |
| 40KN128 | 4 | | Sus scrofa | femur | - | shaft | 1 | - |
| 40KN128 | 7 | 5 | Sus scrofa | canine | - | upper | 1 | - |
| 40KN128 | 5 | 88-20(56-74) | Sus scrofa | mandible | - | - | 2 | - |
| 40KN128 | 5 | 88-20(56-74) | Sus scrofa | unid tooth | - | - | 1 | - |
| 40KN128 | 5 | 88-20(56-74) | Sus scrofa | canine | - | lower | 1 | - |
| 40KN128 | 5 | 88-20(56-74) | Sus scrofa | canine | - | frag | 1 | - |
| 40KN128 | 5 | 88-20(56-74) | Sus scrofa | frag | - | - | 2 | - |
| 40KN128 | 5 | 88-22(456-480) | Sus scrofa | mandible | right | posterior | 1 | - |
| 40KN128 | 5 | 88-22(456-480) | Sus scrofa | rib | - | mid section | 1 | - |
| 40KN128 | 5 | 88-22(456-480) | unid mammal | frag | - | - | 2 | - |
| 40KN128 | 5 | 88-21(192-198) | Sus scrofa | tibia | left | distal diaphysis | 1 | chopped |
| 40KN128 | 5 | 88-21(192-198) | Sus scrofa | tibia | right | distal diaphysis | 1 | - |
| 40KN128 | 5 | 88-21(192-198) | unid mammal | frag | - | - | 2 | - |
| 40KN128 | 3 | 88-27(30) | Bos tarus | pelvis | left | iilium | 1 | - |
| 40KN128 | | 88-44(looted) | Bos tarus | radius | right | shaft | 1 | - |
| 40KN128 | | 88-44(looted) | Bos tarus | mandible | - | gonial angle | 1 | - |

## Appendix III: Identified Remains from the Sixth Avenue Dump (40KN83)

| Site | Lot | Taxon | Element | Side | Section | No. | Mod | Remarks |
|---|---|---|---|---|---|---|---|---|
| 40KN83 | 34 | Bos tarus | calcaneous | left | - | 1 | - | |
| 40KN83 | 35 | Bos tarus | calcaneous | right | - | 1 | - | |
| 40KN83 | 39 | Bos tarus | tibia | left | prox epiphysis | 1 | - | immature |
| 40KN83 | 41 | Ovis aries | femur | right | whole | 1 | - | immature |
| 40KN83 | 36 | Sus scrofa | acetabulum | right | - | 1 | - | |
| 40KN83 | 45 | Sus scrofa | femur | left | distal epiphysis | 1 | - | |
| 40KN83 | 46 | Bos tarus | calcaneous | right | - | 1 | broken | immature |
| 40KN83 | 47 | unid large mammal | long bone | - | epiphysis | 1 | broken | |
| 40KN83 | 63 | unid mammal | frag | - | - | 1 | broken | |
| 40KN83 | 57 | unid mammal | rib | - | - | 1 | broken | |
| 40KN83 | 56 | unid mammal | scapula | - | - | 1 | broken | |
| 40KN83 | 49 | Bos tarus | ulna | left | shaft | 1 | chopped | immature |
| 40KN83 | 38 | Sus scrofa | femur | right | prox shaft | 1 | chopped | |
| 40KN83 | 40 | Sus scrofa | lumbar | - | - | 1 | chopped | immature |
| 40KN83 | 55 | Sus scrofa | rib | - | proximal | 1 | chopped | |
| 40KN83 | 42 | Sus scrofa | tibia | right | shaft | 1 | chopped | |
| 40KN83 | 43 | Sus scrofa | tibia | right | proximal | 1 | chopped | immature |
| 40KN83 | 48 | Sus scrofa | tibia | right | shaft | 1 | chopped | |
| 40KN83 | 58 | unid mammal | frag | - | - | 1 | chopped | broken |
| 40KN83 | 1 | Bos tarus | ilium | left | | 1 | kitchen | |
| 40KN83 | 2 | Bos tarus | tibia | right | distal | 1 | kitchen | 1 chop mark present midshaft |
| 40KN83 | 25 | Sus scrofa | femur | - | shaft | 1 | kitchen | |
| 40KN83 | 26 | Sus scrofa | humerus | - | shaft | 1 | kitchen | distal shaft |
| 40KN83 | 30 | Sus scrofa | humerus | - | shaft | 1 | kitchen | large pig |
| 40KN83 | 32 | Sus scrofa | humerus | - | shaft | 1 | kitchen | |
| 40KN83 | 51 | Sus scrofa | humerus | - | shaft | 1 | kitchen | |
| 40KN83 | 52 | Sus scrofa | humerus | - | shaft | 1 | kitchen | good photo |
| 40KN83 | 53 | Sus scrofa | humerus | - | shaft | 1 | kitchen | |
| 40KN83 | 3 | Sus scrofa | ilium | right | | 1 | kitchen | |
| 40KN83 | 60 | unid mammal | long bone | - | - | 1 | kitchen | broken |
| 40KN83 | 4 | unid mammal | unid | right | distal | 1 | kitchen | |
| 40KN83 | 33 | unid mammal | unid | - | shaft | 1 | kitchen | distal shaft |
| 40KN83 | 14 | Bos tarus | acetabulum | right | - | 1 | meat | |
| 40KN83 | 7 | Bos tarus | ilium | left | - | 1 | meat | |
| 40KN83 | 9 | Bos tarus | tibia | right | distal | 1 | meat | whole distal segment |
| 40KN83 | 8 | Bos tarus | vert | - | transverse | 1 | meat | |
| 40KN83 | 29 | Sus scrofa | femur | - | shaft | 1 | meat | |
| 40KN83 | 6 | Sus scrofa | humerus | left | distal | 1 | meat | saw start present |
| 40KN83 | 50 | Sus scrofa | humerus | - | shaft | 1 | meat | |
| 40KN83 | 54 | Sus scrofa | rib | - | - | 1 | meat | |
| 40KN83 | 10 | Sus scrofa | scapula | right | proximal | 1 | meat | |
| 40KN83 | 20 | Bos tarus | ilium | - | - | 1 | unid | |
| 40KN83 | 11 | Bos tarus | lumber | - | transverse | 1 | unid | |
| 40KN83 | 17 | Bos tarus | lumber | - | transverse | 1 | unid | trabecular bone |
| 40KN83 | 37 | Bos tarus | pubis | right | - | 1 | unid | |
| 40KN83 | 5 | Bos tarus | rib | - | | 1 | unid | |
| 40KN83 | 15 | Bos tarus | rib | - | - | 1 | unid | trabecular bone |
| 40KN83 | 18 | Bos tarus | rib | - | proximal | 1 | unid | whole prox |
| 40KN83 | 22 | Bos tarus | rib | - | frag | 1 | unid | |
| 40KN83 | 23 | Bos tarus | rib | - | - | 1 | unid | |
| 40KN83 | 13 | Bos tarus | tibia | left | proximal | 1 | unid | whole prox segment |
| 40KN83 | 21 | Bos tarus | vertebra | - | transverse | 1 | unid | trabecular bone |
| 40KN83 | 64 | Bos tarus | vertebra | - | - | 1 | unid | |
| 40KN83 | 16 | Sus scrofa | femur | - | shaft | 1 | unid | |
| 40KN83 | 28 | Sus scrofa | femur | - | shaft | 1 | unid | eroded |
| 40KN83 | 27 | Sus scrofa | humerus | - | shaft | 1 | unid | distal shaft, eroded |
| 40KN83 | 44 | Sus scrofa | ischium | right | - | 1 | unid | immature |
| 40KN83 | 31 | Sus scrofa | long bone | - | shaft | 1 | unid | |
| 40KN83 | 12 | Sus scrofa | lumber | - | transverse | 1 | unid | trabecular bone, immature |
| 40KN83 | 24 | Sus scrofa | rib | - | | 1 | unid | eroded, 1 side chopped |
| 40KN83 | 19 | Sus scrofa | tibia | right | shaft | 1 | unid | 1 side chop |
| 40KN83 | 61 | unid mammal | epiphysis | - | - | 1 | unid | |
| 40KN83 | 59 | unid mammal | frag | - | - | 1 | unid | broken |
| 40KN83 | 62 | unid mammal | frag | - | - | 1 | unid | |

## Appendix IV: Identified Remains from the Gulf Range Dump (40KN143)

| Site | Lot | Taxon | Element | Side | Section | No. | Mod | Remarks |
|---|---|---|---|---|---|---|---|---|
| 40KN143 | 11 | Bos tarus | tibia | right | distal shaft | 1 | chop | immature |
| 40KN143 | 10 | Sus scrofa | femur | - | distal | 1 | chop | extensively gnawed |
| 40KN143 | 5 | Bos tarus | radius | right | shaft | 1 | meat saw | |
| 40KN143 | 9 | Bos tarus | femur | right | distal | 1 | meat saw | mature |
| 40KN143 | 13 | Bos tarus | tibia | left | proximal shaft | 1 | meat saw | mature |
| 40KN143 | 16 | Bos tarus | pelvis | left | ace and ischium | 1 | meat saw | |
| 40KN143 | 7 | unid large mammal | long bone | - | shaft | 1 | meat saw | |
| 40KN143 | 1 | Bos tarus | humerus | left | proximal epiphysis | 1 | none | eroded |
| 40KN143 | 2 | Bos tarus | femur | left | distal epiphysis | 1 | none | eroded |
| 40KN143 | 3 | Bos tarus | calcaneous | left | whole | 1 | none | |
| 40KN143 | 4 | Bos tarus | radius | left | whole | 1 | none | immature |
| 40KN143 | 12 | Bos tarus | tibia | left | whole | 1 | none | immature |
| 40KN143 | 14 | Bos tarus | radius | left | whole | 1 | none | mature |
| 40KN143 | 15 | Bos tarus | tibia | right | whole | 1 | none | immature |
| 40KN143 | 6 | unid mammal | frag | - | - | 2 | none | |
| 40KN143 | 17 | Bos tarus | humerus | left | distal epiphysis | 1 | unid saw | |
| 40KN143 | 8 | Sus scrofa | femur | - | distal slice | 1 | unid saw | |

## Vita

Rachel Jeannine Windham was born on February 10, 1978, in Montgomery, Alabama. She attended Peter Crump Elementary School, Baldwin Magnet Junior High, and Jefferson Davis High School. During high school, Jeannine maintained an interest in English and visual arts and received several awards for the latter. She left Montgomery upon graduation in 1996 and moved to Atlanta, Georgia, where she attended Georgia State University and was first exposed to anthropology.

Greater opportunities led Jeannine to the University of Alabama, Tuscaloosa, where she studied southeastern archaeology. While focusing on skeletal biology, she was drawn to zooarchaeology and initially explored the subdiscipline by analyzing remains from Moundville Archaeological Park and Dust Cave. Several small projects were also undertaken while Jeannine was employed at the Office of Archaeological Services (OAS) that secured an interest in zooarchaeological studies.

She graduated from the University of Alabama in May 2001 with a Bachelor of Arts degree and entered graduate school at the University of Tennessee, Knoxville, in August 2001. Continued focus in zooarchaeology under the guidance of Dr. Walter E. Klippel ensued over the following two years resulting in graduation with a Master of Arts degree in anthropology in December, 2003.